JUNE, 1951

117
JUN 13 '51 P

Commercial Refrigeration

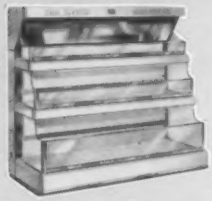
AND AIR CONDITIONING

JUN 13 '51

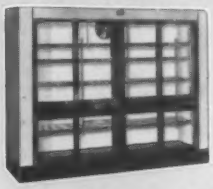
YOUR 1951 MARKET IN THE FOOD SERVICE FIELD

MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF COMMERCIAL REFRIGERATION AND AIR CONDITIONING EQUIPMENT

MODEL 1407. Self-service frozen food display case. Attracts and handles more buyers, invites more sales.



MODEL 306. The sensational open case with THREE refrigerated shelves. For profit-making impulse sales.



MODEL 3508. Wall Type Display Case. For self-service display of dairy products or beverages.

MODEL 3865. A 65-cu. ft. reach-in refrigerator. One of the four popular Koch reach-in cabinets.

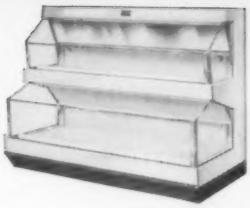
THE QUALITY REFRIGERATOR LINE

MODEL 6710. 10 ft. long open front case with extra wide display shelf. Ideal for produce display.

SERIES 3100. Endless top display cases, 7 and 10 ft. long. Set up in any length for profit displays.

WIN friends

and influence your customers with a new KOCH two shelf Dairy Case. 12 feet of refrigerated shelving in a compact 6-ft. case that can easily "Daily Double" your self-service sales. Extra roomy—100% visibility—mirror back—properly sized for wall and island displays.

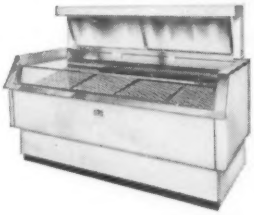


PLACE this

new KOCH self-service Meat Display Case where you want your heaviest traffic...to sell MORE packaged meats to MORE modern customers. Service from the rear won't interfere with the parade of buyers in front. 7 and 10-ft. models. Removable ends for continuous display.

SHOW twice

as much with a mirror back! Just add the KOCH Salesmaker canopy top to the display case above and get off to a faster start. Add bright lights and sliding mirrors that also permit service from the rear.



THREE WINNERS out of KOCH to parlay into faster, bigger profits! Write today for the latest tip sheets on these!

YOU CAN BET ON

KOCH REFRIGERATORS

SINCE 1883 NORTH KANSAS CITY 16, MO.

SEND THIS COUPON *today* **FOR FULL DETAILS**

KOCH REFRIGERATORS CR-6
North Kansas City 16, Missouri
Please send me at once complete details on your dealer proposition. I understand several attractive territories are available.

Name.....

Address.....

City.....Zone.....State.....

Circle No. 1 on Reader Service Card for more information

SERVICE ON THE SPOT IN 3 EASY STEPS

1 loosen cap screws

2 raise power element

3 lift out cage

Now the valve is ready for cleaning or repair without removing it from the line. If you want to change capacity, just change the cage.

EASY—ISN'T IT!

This simplified construction also reduces friction — gives faster valve action. All internal parts are made of corrosion-resistant brass or stainless steel. For "Freon 12," "Freon-22," Methyl Chloride.

For further details, write for Bulletin 171.

See your ALCO wholesaler!

ALCO VALVE CO.

843 KINGSLAND AVE. • ST. LOUIS 5, MO.

4629

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

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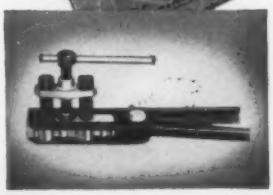
'PENN'ETRATION OF QUALITY DISTINGUISHES TUBING

PRODUCTION is regulated by the times

With less tubing now available, *quality is an all-important factor*—PENN tubing goes further—*quality* assures less waste. *Quality* of tubing can only be determined by what is beneath the surface. Utmost skill and ingenuity penetrate every operation in the manufacture of tubing at PENN. From the uniform wall thickness to the clean and bright interior, *quality* is drawn into every foot of PENN tubing to give you a dry tube—an easy bending tube—the finest tube for all standards. For 100% quality inside and out, look for tubing with the PENN trademark, packed in PENN's protective Job-Pak carton.

TUBE SAVING TOOLS

The Papco No. 400 Flaring Tool, No. 500 Cutting Tool, and the revolutionary Form-a-Gage reduce tubing waste to a minimum. Papco Tools save time and tubing. Write for detailed literature today.



PENN BRASS & COPPER COMPANY
ERIE • PENNSYLVANIA • TELEPHONE 3-5111

JUNE, 1951

VOLUME 8, No. 6

THE COVER . . . In commercial kitchens all over the country—whether in drive-ins, cafeterias, restaurants, hotels or institutions—modern refrigeration equipment helps maintain America's high standards of food preparation and service. Here again the men who sell, install, and service this equipment perform a vital service to their country.

Commercial Refrigeration
AND AIR CONDITIONING

Established 1944 as
THE REFRIGERATION INDUSTRY

THIS MAGAZINE has no official affiliation with ANY group, society or association.

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SELLING THE 1951 MARKET

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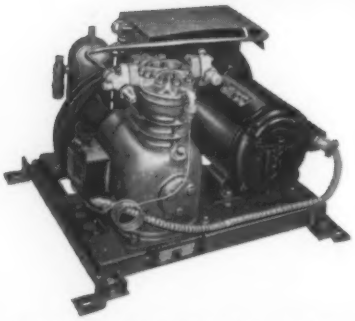
Acceptance under Section 34.64, PL&R, authorized at Milwaukee, Wisconsin.

MILLS CONDENSING UNITS
LARGE and SMALL CAPACITIES

Model 1000-W: Mills big sturdy-duty 10 h.p. Water Cooled Condensing Unit. A giant for service.



Model 23-C: Mills small ¼ h.p. Air Cooled Unit. Widely used for a variety of requirements. Dependable long-life construction.

All Provide Same Reliability and Long-Life Economy

Chosen again and again for their long-life dependability, Mills Compressors and Condensing Units, from the 10 h.p. down to the ¼ h.p. capacity, give you a range to meet the big majority of all refrigerating and air conditioning requirements.

You'll find no skimping—no over-rating. Because of proven performance, experienced engineers and service men know they can count on Mills Units long-life performance. They cost **less** per year!

MILLS INDUSTRIES, Incorporated
4100 Fullerton Ave. • Chicago 39, Illinois

Write for 60-page Bulletin 204-1

MILLS
CONDENSING UNITS

CAPACITIES FROM 10 H. P. DOWN TO ¼ H. P.

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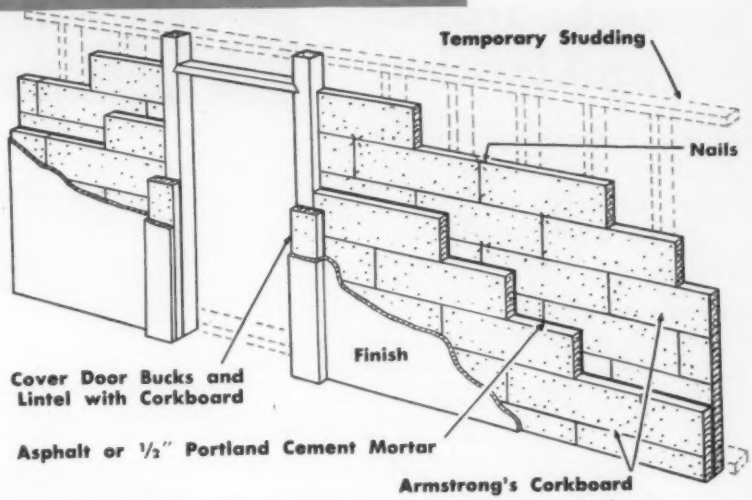
From our notebook of

INSULATION CONSTRUCTION



Walls of solid corkboard cut building costs

Great strength and rigidity are among the most important characteristics of corkboard insulation. Because of those two properties, walls of cold rooms often can be erected free-standing, built of solid cork. Walls of this type may go as high as 14′ without any additional support. That means your customer saves the cost of erecting interior building walls.

Free-standing walls are recommended where cold rooms are built entirely within larger rooms or are built into a corner, and two of the walls may be self-supporting. Here's how to build a free-standing wall of solid corkboard:

First, 2 x 4 studs are put up temporarily on 18″ centers, and the first layer of corkboard is placed against the studs. It can be held in place until the next layer is applied by toenailing the corners together and then tying the corkboard to the studs with strings.

If you plan to finish the wall with asphalt emulsion on both sides, the next step is to put up the second course of cork against the first layer with portland cement plaster between the layers. The cement gives the wall extra rigidity. If you're going to finish with portland cement plaster, hot asphalt should be used.

In either case, the two layers should be securely fastened together with hardwood skewers. After the finish has been applied to one side of the wall, the temporary studs are removed. The finish is then applied to the other wall surface.

Armstrong's Corkboard offers more than strength and rigidity to cold room construction. It has outstanding moisture resistance and high insulating efficiency. It is easily cut to form clean, sharp edges so that you get accurate, snug joints. It will not shrink, swell, warp, or harbor vermin. Finishes bond securely to its surface. It's a material that gives many years of dependable service.

You can get complete information on efficient corkboard insulation by calling the Armstrong office nearest you or writing direct to the Armstrong Cork Company, 5306 Concord Street, Lancaster, Pennsylvania.

ARMSTRONG CORK COMPANY

Makers of Armstrong's Corkboard and Cork Covering

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specify

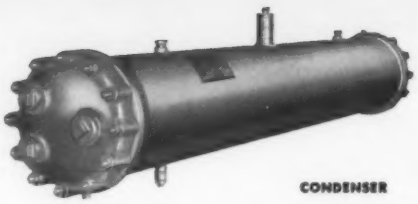
for an unbeatable combination

Acme

Acme can furnish the unbeatable combination for industrial liquid chilling. When you specify an Acme Dry-Ex liquid chiller, heat exchanger, or oil separator, you'll get a flexible combination with many years of low cost, trouble free service.

ACME CONDENSERS

Offered in Shell and Coil and Shell and Tube designs, the ACME line of condensers is very complete — more than 120 standard sizes are offered for use with Freon, plus seven sizes in Model SC Shell and Finned Coil, with twelve additional sizes in Model J Shell and Tube Condensers. Both are designed for Freon 12 or Freon 22 Refrigerant. ACME Condensers are inexpensive, have drainable coils, are easy to clean and are compact, sturdily built and extremely efficient.



CONDENSER

ACME HEAT EXCHANGERS

Available in 16 standard sizes, in capacities from ½ to 180 tons, ACME Heat Exchangers increase compressor capacity, prevent flash gas in liquid line, eliminate expansion valve vibration or chattering and offer true counter-flow operation. Model H has shell and coil construction. Also available in "U tube" bundle construction. ACME Heat Exchangers offer a practical solution when compressor capacity is on the border line for load requirements.

HEAT EXCHANGER

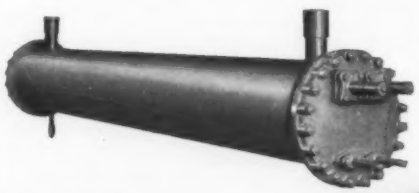
ACME OIL SEPARATORS

Are offered in a complete range of sizes, are economical and efficient to operate, easy to install and offer positive oil separation. Offered in a complete range of sizes, they are scientifically engineered for use with Ammonia or Freon. Series F Units have a central mounting strap and may be mounted directly on the Compressor base. Series FK and AK Models have a support bracket welded to the top.

OIL SEPARATOR

ACME DRY-EX* WATER COOLERS

Designed to meet an extensive variety of either commercial or industrial applications, ACME DRY-EX Water Coolers are offered in more than 700 combinations of refrigerant heads baffle spacings and tube lengths. ACME Straight through tube construction permits the refrigerant circuit to be increased twice as frequently as in the "U tube" design. Baffles have a tighter fit with the shell and with the tube, and straight through tubes can easily and economically be replaced in the field.



WATER COOLER

ACME ALSO MANUFACTURES: *Freon Condensers—Ammonia Condensers—Bio-Cold* Industrial Unit Coolers — Evaporative Condensers — Liquid Receivers — Pipe Coils — Shell and Tube Condensers — Shell and Coil Condensers — Heat Exchangers — Flow-Cold* Liquid Chillers.*

ACME PRODUCTS ★★★

Acme INDUSTRIES, INC., JACKSON, MICHIGAN, U.S.A.

**Trade Mark*

Write Dept. CF

CONTINUOUSLY SERVING THE REFRIGERATION INDUSTRY SINCE 1917

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Century 1 TO 400 H.P. MOTORS

Choose From These Many Types To Fit Your Job

DEPENDABLE CONSTRUCTION . . . Plus

PROPER SELECTION MINIMIZE SHUTDOWNS

Century Electric Company is celebrating its 50th year in the electrical industry.

It's easy to select the proper electric motor for your job from Century's complete line — from 1/6 to 400 horsepower. A wide range of types and kinds are available to satisfy all popular requirements. They are carefully designed, built and tested to assure maximum performance throughout their long life.

Here are examples of Century's line of INTEGRAL HORSEPOWER motors.

Polyphase

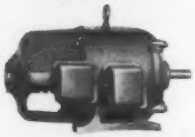
TYPE SC—Open Drip proof General Purpose Motor. Meets the needs of most installations where operating conditions are relatively clean and dry.

TYPE SC—Splash proof. Supplies protection where plants must be washed down. Keeps out all falling or splashing liquids—rain, snow, sleet, etc.

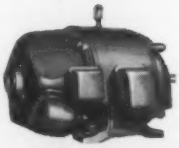
TYPE SC—Totally Enclosed Fan Cooled. Protects against dusts, mist, oil, fog. Inner frame protects vital parts of the motor, seals out harmful matter.

TYPE SC—Explosion proof. Protects life and property in atmospheres charged with explosive dusts or gases.

TYPE SR—Wound Rotor. Open Construction. Ideal for applications requiring low starting current with high starting torque, reversing or adjustable speed.



TYPE SR—Wound Rotor Splash proof. Same electrical characteristics as motor shown above. In addition, gives adequate protection against falling and splashing liquids.



Single Phase

TYPE RS—Repulsion Start Induction, Open Construction, Single Phase Brush Lifting Motor. Combines high starting torque with low starting current.

683

TYPE RS—Splash proof. Same advantages as open construction, plus protection against splashing and falling liquids.

TYPE CSH—Capacitor Start Induction, Single Phase Motor. Suitable when high starting torque with normal starting current is satisfactory.

TYPE CSH—Splash proof. Same advantages as motor shown above, plus protection against falling and splashing liquids.

Direct Current

TYPE DN—Direct Current Motors. Suitable for use where direct current is available, or its use desirable.

TYPE DN—Direct Current, Splash proof.

TYPE SY—Synchronous. Suitable for continuous operation at a uniform load for power factor correction.

In addition to a complete line of integral horsepower motors, Century offers fractional horsepower motors, gear motors, generators, AC and DC motor generator sets.

For a long life of satisfactory performance, specify Century motors for all your electric power requirements.

CENTURY ELECTRIC COMPANY, 1806 Pine Street, St. Louis 3, Missouri • Offices and Stock Points in Principal Cities

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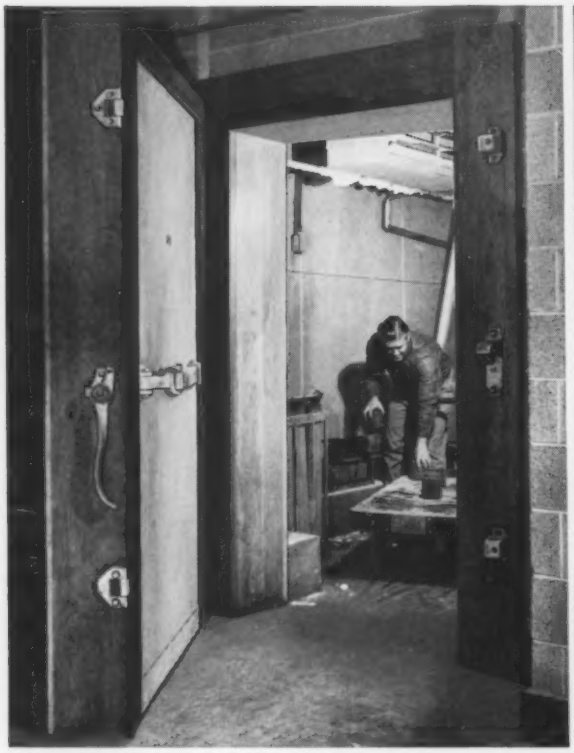
JAMISON DOORS

Installed in Model Research and Development Laboratories

ONLY THE BEST DOORS WERE GOOD ENOUGH

for installation in Portland Cement Association's national research and development laboratories. This famous center houses more than 30 laboratories—moist curing rooms, fog rooms, controlled atmosphere rooms capable of duplicating conditions of arctic cold or tropic heat and humidity from desert dryness to saturation. Here, every climate encountered anywhere in the world can be reproduced!



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the popular Jamison SUPER FREEZER Door is used in this Testing Room where all effects of extremely low temperature are studied.

IN MOISTURE AND HUMIDITY TESTING ROOM

the Stainless Clad, Jamison LO-TEMP Door provides a moisture and vapor-proof barrier and seal.

Standard models of superior Jamison-built doors are available in a wide range of sizes. We will also build any *special types or sizes* of cold storage doors TO YOUR SPECIFICATIONS! Write for Catalog 175. Jamison Cold Storage Door Co., Hagerstown, Md. U.S.A.

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The leader for over 50 years.

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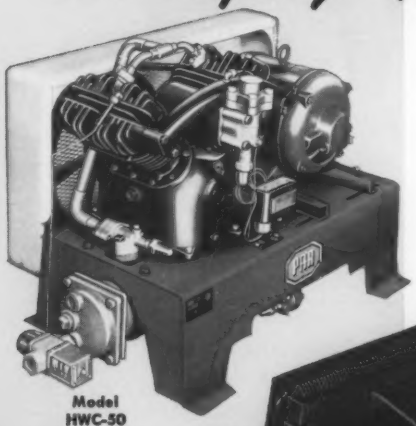
Modern testing methods assure...

PAR *and* PARmetic

B.T.U. Capacity Ratings are Always Right!



Model HWC-50

PARmetic Model PM-O

Lynch modern Calorimeter tests establish accurately PAR and PARmetic B.T.U. Capacity ratings as advertised!

When you buy PAR or PARmetic, you're sure the B.T.U. ratings are right—and that the Units will give trouble-free dependable performance.

PAR conventional condensing units, air-cooled 1/6 to 3 H.P., water-cooled 1/2 to 15 H.P., Combination air and water 1/2 to 3 H.P. PARmetic sealed units from 1/8 to 1/3 H.P.

BY COMPARISON—YOU'LL BUY *PAR* and *PARmetic*

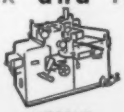
PAR AIR COMPRESSORS

PAR REFRIGERATION COMPRESSORS

WRAP-O-MATIC CANDY & COOKIE WRAPPING MACHINES

LYNCH CORPORATION

PAR COMPRESSOR DIVISION
TOLEDO, OHIO



MORPAC PAPER PACKAGING MACHINES

MORPAC BUTTER & OLEO PACKAGING MACHINES

GLASS FORMING MACHINES

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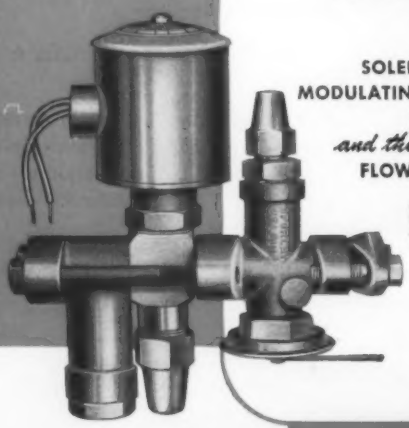
for PEAK PERFORMANCE on all installations buy SPORLAN right down the line!



For All Sizes and Types of Refrigeration and Air-Conditioning Applications Sporlan Manufactures

SOLENOID VALVES • SOLENOID PILOT CONTROLS
MODULATING PILOT CONTROLS • REFRIGERANT DISTRIBUTORS
STRAINERS • CATCH-ALL FILTER-DRIERS
and the Only THERMOSTATIC EXPANSION VALVES *with* FLOW MASTER ELEMENTS AND SELECTIVE CHARGES

SPORLAN VALVE COMPANY
7525 SUSSEX AVE. • ST. LOUIS 17, MO.

SPORLAN

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MORE REFRIGERATION
with the

METER PLAN

- Safe
- Easy
- Low Cost
- A Real Sales Builder

Model DM6

Use

METER-MATIC

COIN METERS

ONLY $10.95 and up

—Low in price!

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2626 W. Washington Blvd., Chicago 12, Ill. Dept. 61-M

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- ☐ 1951 Survey "Meter Plan for Selling Commercial Refrigeration".
- ☐ Lists of banks handling Meter Plan paper.

Company_____ Name_____

Address_____

City_____ Zone____ State_____

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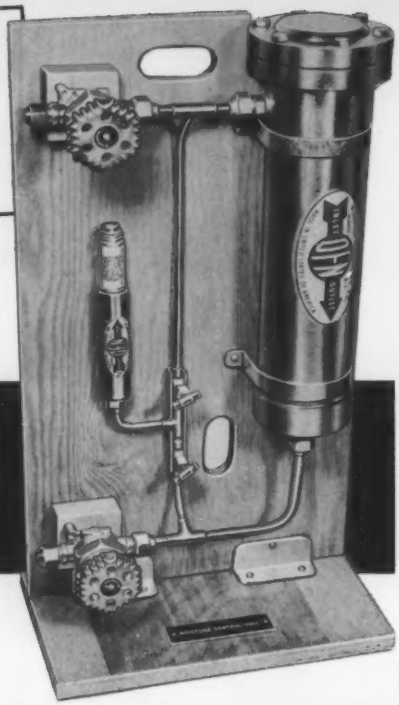
SAVE — ON DRIERS — ON SERVICING TIME — ON CALLBACKS



Dry and clean up MANY wet jobs with this Portable, High Capacity

DFN MOISTURE CONTROL UNIT

DON'T waste servicemen's time and use up numerous hard-to-get driers to dry wet systems or overcome freezeups. Simply hook up the DFN Moisture Control Unit and have the wettest system operating quickly with a single pass of refrigerant charge through the Unit. All moisture and foreign matter are held in the Unit—only dry, clean refrigerant is released, thus no danger of freezing or plugging of expansion valves.

The DFN Moisture Control Unit uses a high capacity, replaceable cartridge, charged with McIntire-Processed Granular Desiccant. It takes up and holds over 18 teaspoonfuls of water. It filters all sludge, solder flux and foreign matter. The DFN Moisture Indicator tells when system is wet or dry, and indicates when cartridge needs replacement. Dries efficiently at refrigerant temperatures up to 150° F.—down to minus 60° dew point.

The Unit is portable—services many jobs in field, shop or factory. It is a money-making service tool that you will use almost daily. Occasional replacement of cartridges for indicator and drier, keep the Unit in perpetual service. See it at your wholesaler—or write us for Bulletin C-2.

NO REPLACEMENT PROBLEM

when you install

McINTIRE DC Cartridge Type FILTER DRIERS

You never discard the heavy-duty, demountable shell—merely change the low-cost, easily obtained cartridge. Saves critical materials, servicing time and drier costs. Guaranteed moisture ratings assure extra capacity for peak summer loads, reducing callbacks and customer complaints. See your wholesaler.

Our 26th Year

McINTIRE CONNECTOR CO., 257 Jefferson St., Newark 5, N. J.

DFN TRADEMARK **DRIERS** . . . all types and sizes, up to 100 tons

MOISTURE CONTROL UNIT · MOISTURE INDICATOR

STRAINERS · FILTERS

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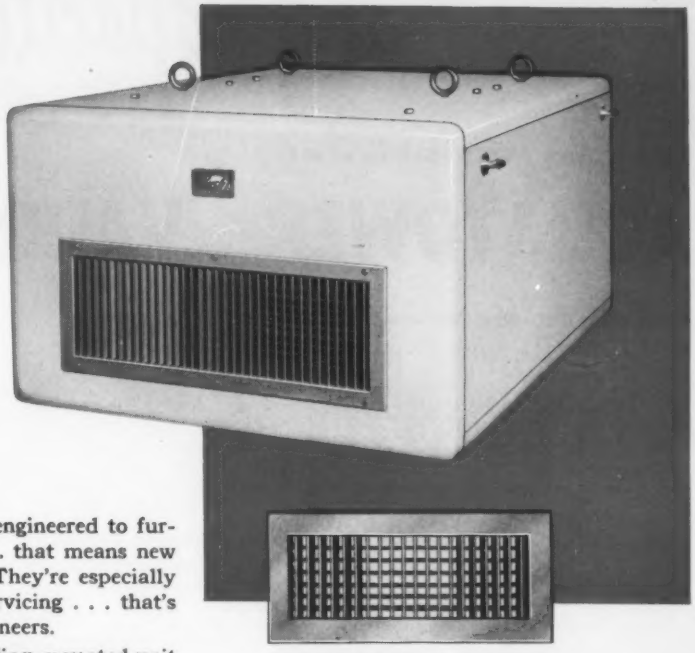
Be sure to specify

The New Bush Comfort Conditioner

FOR CUSTOMER SATISFACTION

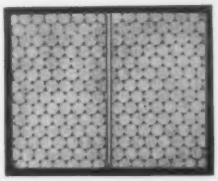


BUSH Comfort Conditioners are expertly engineered to furnish better air conditioning at low cost . . . that means new customers and more profit for the dealer. They're especially designed to afford easy installation and servicing . . . that's good news for contractors and service engineers.

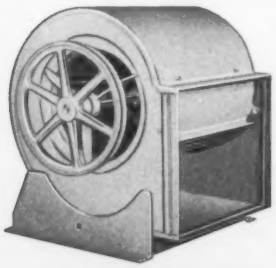
The BUSH Comfort Conditioner is a ceiling-mounted unit . . . conserves valuable floor space. The condensing unit can be placed in the basement or any other location away from the air conditioned area — thereby eliminating noise. If the business location should change, the BUSH Comfort Conditioner can be easily moved: merely unbolt from the ceiling and pack along the condensing unit . . . you can move the air conditioning as you would a piece of furniture.

Investigate the BUSH Comfort Conditioner today; you'll be glad you did.

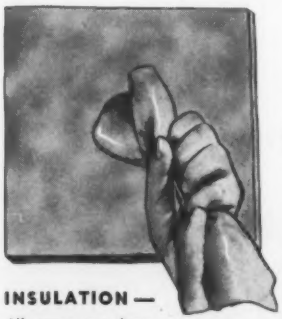
DISCHARGE GRILL — Two-directional discharge grill allows for wide variety of air distribution.



FILTERS — Throw-away type filters are available for all units. All filter sections have a flange for attachment to ductwork.



BLOWER WHEEL AND BEARING ASSEMBLY — Balanced forward-curved wheel and neoprene-encased bearing assembly provide smooth performance and long life.



INSULATION — All cases are insulated with thermal-acoustical material for quiet operation and insurance against condensation on casing.

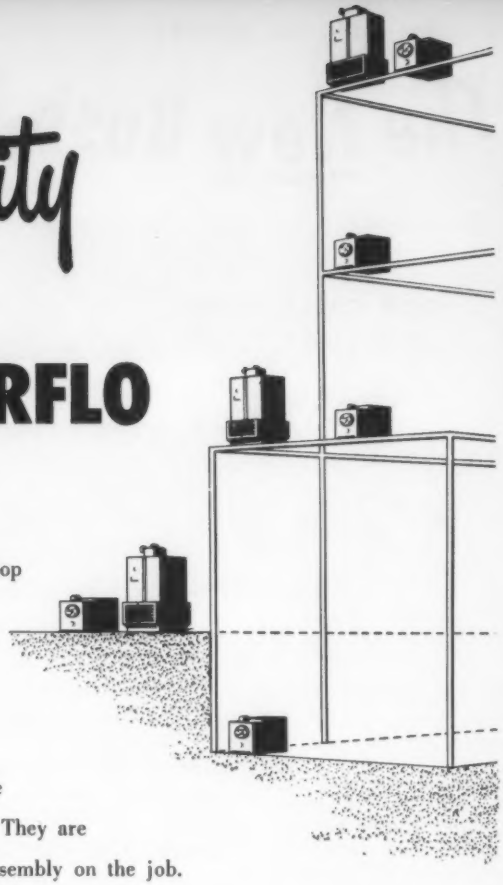
Bush
HEAT TRANSFER PRODUCTS

BUSH MANUFACTURING CO. • WEST HARTFORD 10, CONN.

Buy the Best-and the Best is Bush

Circle No. 13 on Reader Service Card for more information

any location any capacity



Just name the place . . . and

AQUATOWER or VAIRFLO

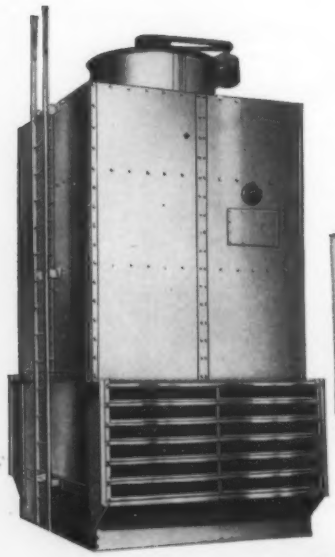
will do the water cooling job!

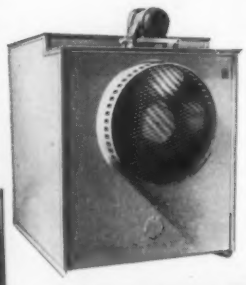
Indoors or out . . . on the ground or on the roof . . . on the top floor or in the basement—*there's a Marley cooling tower designed to fit any location and any cooling requirement.*

If your job is in the 3-ton to 60-ton range, you need an adaptable Aquatower—the compact, trouble-free cooling tower for indoor or outdoor use. Aquatowers are made in nine sizes and two styles to do each specific job economically. They are shipped completely assembled or "knocked-down" for easy assembly on the job.

In larger capacity installations the answer is a versatile Marley Vairflo . . . a broad range cooling tower with all the quality "extras" ordinarily found only in heavy-duty, high priced towers. The Vairflo, in steel or wood, harmonizes with architectural design. All material in Vairflos is completely prefabricated for simple job erection.

Whatever your need, select a Marley tower backed by the Marley guarantee and the "know-how" gained in more than 25 years of leadership in the water cooling industry. For more information, write for Marley bulletins AQ-51 and V-51, or call the Marley representative in your city.





also producers of
DOUBLE-FLOW TOWERS
CONVENTIONAL TOWERS
DRICOOLERS
NATURAL DRAFT TOWERS
SPRAY NOZZLES

The Marley Company, Inc.

MARLEY

KANSAS CITY 15, KANSAS

Circle No. 14 on Reader Service Card for more information

IF IT'S CUSTOMERS YOU WANT

...then start now and install

BRUNNER SINCE 1906 **AIR CONDITIONING**

Last year we increased our production schedules on Brunner Self Contained Air Conditioners three times—*demand was triple that for which we had planned.*

This more than anything else we can tell you, proves that in a highly competitive market, Brunner units offered more of what the buyers wanted.

When a prospect asks what you have to offer it's a mighty satisfying feeling to say "Brunner," then proceed to show him design features that even a layman can understand will deliver air conditioning values which more than justify the investment.

There is no reason why you should sell the hard way—sell BRUNNER. It costs nothing to listen so use the coupon to make a date.

BRUNNER MANUFACTURING COMPANY
Utica 1, New York, U. S. A.

Tear out and mail!

I'm willing to do more business. Have your factory field representative stop in and bring me up-to-date on what Brunner has to offer me as a dealer. Send current catalogs in the meantime.

Name _____

Company _____

Address _____

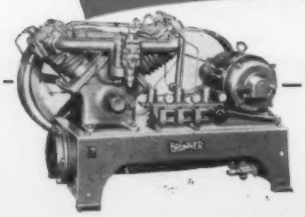
City and State _____

BRUNNER SINCE 1906

AIR CONDITIONING

- **Self Contained 3 HP. to 10 HP.**
- **Remote Type 3 HP. to 75 HP.**

Completely Brunner built . . . backed by a fine reputation forty-five years old.



REFRIGERATION CONDENSING UNITS by
AIR AND WATER COOLED MODELS—*a size and type for every purpose...* **¼ HP. TO 75 HP.**

BRUNNER SINCE 1906

Circle No. 15 on Reader Service Card for more information

let KOLD-HOLD show you

how you can lower refrigeration costs with serpentine plate banks

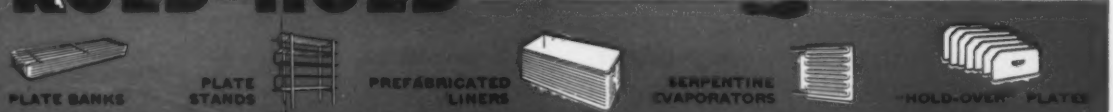
Look at the heat-absorbing area there is in this "Serpentine" Plate Bank and you will see why it cools large areas so quickly and economically. The patented "Serpentine" design makes possible the equivalent of 100% prime surface. The refrigerant flows through channels formed by joining a flat metal sheet to an embossed metal sheet. The refrigerant is in direct contact with the surface, therefore the entire surface of each plate is effective heat transfer area.

When a number of "Serpentine" plates are joined by a manifold, or series connected, you are getting the maximum in refrigeration in a compact bank unit.

You need no additional medium of heat exchange with Kold-Hold Plate Banks, there are no extras to buy, simple fittings make possible easy installation almost anywhere by merely connecting to your main refrigerant line. As Kold-Hold Plate Banks have no internal tubing or piping, their weight per square foot is extremely low. Think of what these facts mean to you in lower maintenance and power costs.

You get efficient and dependable refrigeration at low cost by using Kold-Hold "Serpentine" Plate Banks. Send for full details today!

KOLD-HOLD *protects every step of the way*



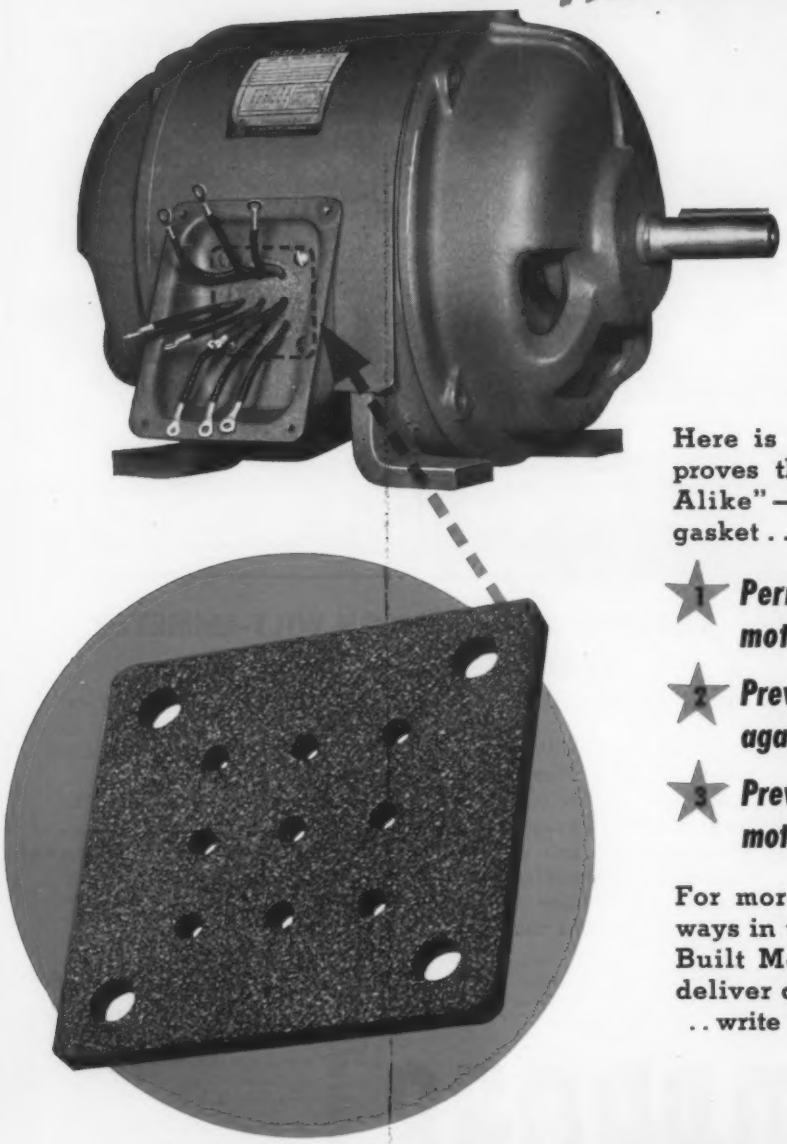
KOLD-HOLD MANUFACTURING COMPANY 503 E. Hazel St., Lansing 4, Michigan

Circle No. 16 on Reader Service Card for more information

RELIANCE
Precision-Built
MOTORS

In making a **better** motor . . .

IT'S THE LITTLE THINGS THAT COUNT, too!



Here is one of the extras which proves that "All Motors are NOT Alike"—this synthetic rubber gasket . . .

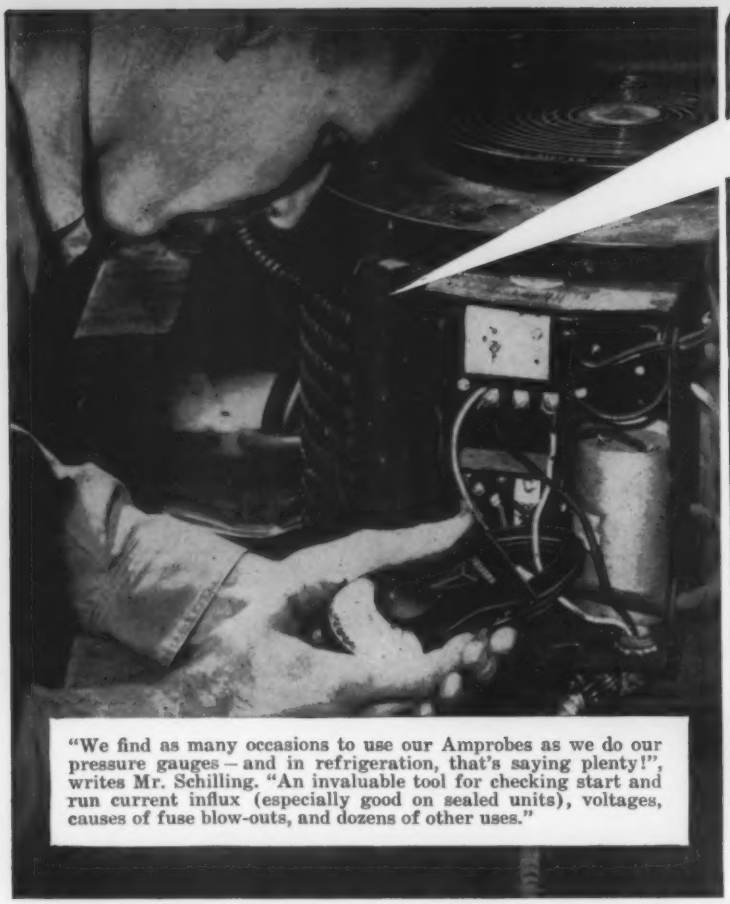
1. ***Permanently indexes the motor leads***
2. ***Prevents leads from rubbing against metal parts***
3. ***Prevents water from entering motor at conduit box***

For more evidence of the many ways in which Reliance Precision-Built Motors are made better to deliver dependable power longer . . write for Bulletin B-2101.

RELIANCE ELECTRIC AND ENGINEERING CO.

1113 Ivanhoe Road, Cleveland 10, Ohio • *Sales Representatives in Principal Cities*

Circle No. 17 on Reader Service Card for more information



"We find as many occasions to use our Amprobes as we do our pressure gauges – and in refrigeration, that's saying plenty!", writes Mr. Schilling. "An invaluable tool for checking start and run current influx (especially good on sealed units), voltages, causes of fuse blow-outs, and dozens of other uses."

"COULD A DOCTOR GET ALONG WITHOUT A STETHOSCOPE?"

that's how the Amprobe rates with John E. Schilling,

owner, Schilling Chilling Company, 1403 E. Southern, Indianapolis, Ind.

$49.50 *complete with genuine top grain cowhide leather case and voltage test leads.*

OTHER AMPROBE USERS SAY:

"Far superior to any instrument of any type performing the same service that I ever saw or used. A 'must' item for any refrigeration serviceman or electrician."—*Roy V. Culy, Culy Refrigeration Service, Richmond, Ind.*

"The Amprobe is easy to take with you when you go to check a motor, due to its small size. Also, the design of the jaws will let the Amprobe work inside the terminal box on most motors."—*Leycester Moore, Moore Electrical Motor Service, Brady, Texas.*

"One of the handiest instruments I ever owned. It is so small and accurate, I am sorry I never had one before this."—*Kenneth O. Bultman, Electrician, Fairborn, Ohio.*

AMPROBE—THE SNAP-ON VOLT-AMMETER THAT FITS IN YOUR POCKET!

Reads current without interrupting circuit or breaking insulation

Look what you can do with this one pocket-size tool: Determine load conditions instantly without having to shut down equipment. Spot motor overloads and underloads. Diagnose trouble calls faster, under actual load. Check line voltage and drops. Set overload relays, etc.

- So compact, it fits in your pocket.
- ½ the usual size—only 7".
- ⅓ the usual weight—only 14 oz.
- Accuracy: ±3% (of full scale deflection).
- Field-proved and accepted – tens of thousands in daily use today.
- About ½ the usual price.

AMPROBE 10X SENSITIZER

Effectively gives the Amprobe 3 additional ranges: 0-1 AMPS. 0-2.5 AMPS. 0-5 AMPS. **$3.75**

Model A-6 measures 5 A.C. current ranges: 10/25/50/100/250 amperes; plus 2 A.C. voltage ranges: 150/600 volts. Two other models available.

AMPROBE®

A PYRAMID INSTRUMENT

See it today at the better electrical distributors

Send for this 16-page manual

CR-6

PYRAMID INSTRUMENT CORP.
49 Howard Street
New York 13, N. Y.

Please send me your new 16-page Manual—"HOW TO MAKE YOUR JOB EASIER WITH AN AMPROBE."

Send literature on Amprobe Sensitizer and Split Plug.

(print your name, company and address in the margin)

Circle No. 18 on Reader Service Card for more information

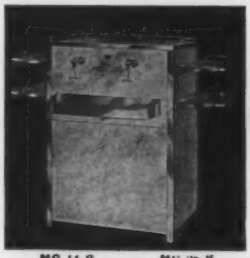
for all water cooling use *Filtrine* —sell more condensing units

"DO Rating" Orders are Vital...

All Federal Agencies . . . Air Force . . . Army . . . Navy . . . Marine Corps . . . know that Filtrine products meet government specifications.

COOLERS FOR MESS HALLS — CAFETERIAS

Sell your own condensing unit **. . . with coolers backed by Filtrine's 40-year dependability. 1. Government and general acceptance for high efficiency—dependability—20-year life-span construction. 2. High capacity—super storage. 3. Handsome exterior (all Stainless Steel or Duco with Stainless trim). 4. Equipped to suit with top and/or side shelves. 5. Bubblers, glass-fillers, front, back, or all sides. 6. Can be "Taste-Master" equipped to banish chlorine and insure sparkling water.**

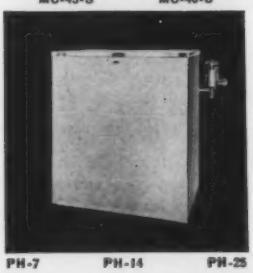


MC-14-S MC-43-S MC-20-S MC-40-S

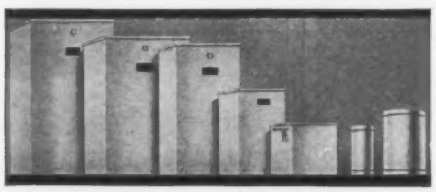
No. 4 "Taste-Master" Filter

COOLERS FOR X-RAY & PHOTOGRAPHY

Sell your own condensing unit **. . . with these Filtrine coolers pre-approved by military and V.A. medical procurement offices, Signal Corps, Air Force, etc., for X-Ray darkroom and photo-lab installation. 1. Dependable water of correct temperature for film processing. 2. Large storage for heavy draw and emergency requirements. 3. High efficiency, economy operation—20-year life-span construction. 4. Floor mounted with *Stainless Steel* work-table top; also under-counter models. 5. Filters (extra) prevent scratched and pinholed negatives.**



PH-7 PH-14 PH-25



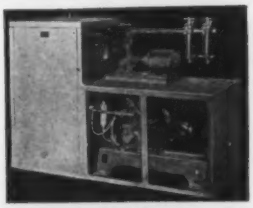
MH-300-R MH-150-R M-300-R M-150-R M-90-R M-75-R MA-40-R M-43-R M-40-R M-25-R M-14-R X-2-R M-7-R M-10-R M-20-R

REMOTE COOLERS FOR ALL USES

Sell your own condensing unit **. . . with Filtrine coolers suitable for new and replacement installation everywhere: barracks, military depots, mills, schools, postoffices. 1. Capacities—5-800 g.p.h.—storage 7—300 gallons. 2. High efficiency—20-year life-span. 3. Insulation—2" hydrolene-sealed corkboard. 4. Filters and Rectifiers/Dechlorinators available for all sizes.**

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your own condensing unit **. . . with complete Filtrine systems for circulating drinking water in offices, hospitals, industrial plants . . . for processing water as low as 34 deg. 1. Completely packaged for streamlined engineering, quick installation. 2. Capacities 5 to 400 g.p.h—Storage 5 to 150 gallons. 3. Equipped with heavy-duty pump. 4. Your condensing unit factory installed. 5. Insulation—2 inch hydrolene-sealed corkboard. 6. 20-year life-span construction. 7. Filter-Rectifier assembly (extra) to kill chlorine and keep water sparkling.**



Typical "Packaged" Circulating Chilled Water System

Get our new "How to Sell D O Jobs" Write Dept. RF2

Filtrine HIGH EFFICIENCY

FILTRINE MANUFACTURING COMPANY · BROOKLYN 5 · N. Y.

"Water Coolers and Filters for 40 Years"

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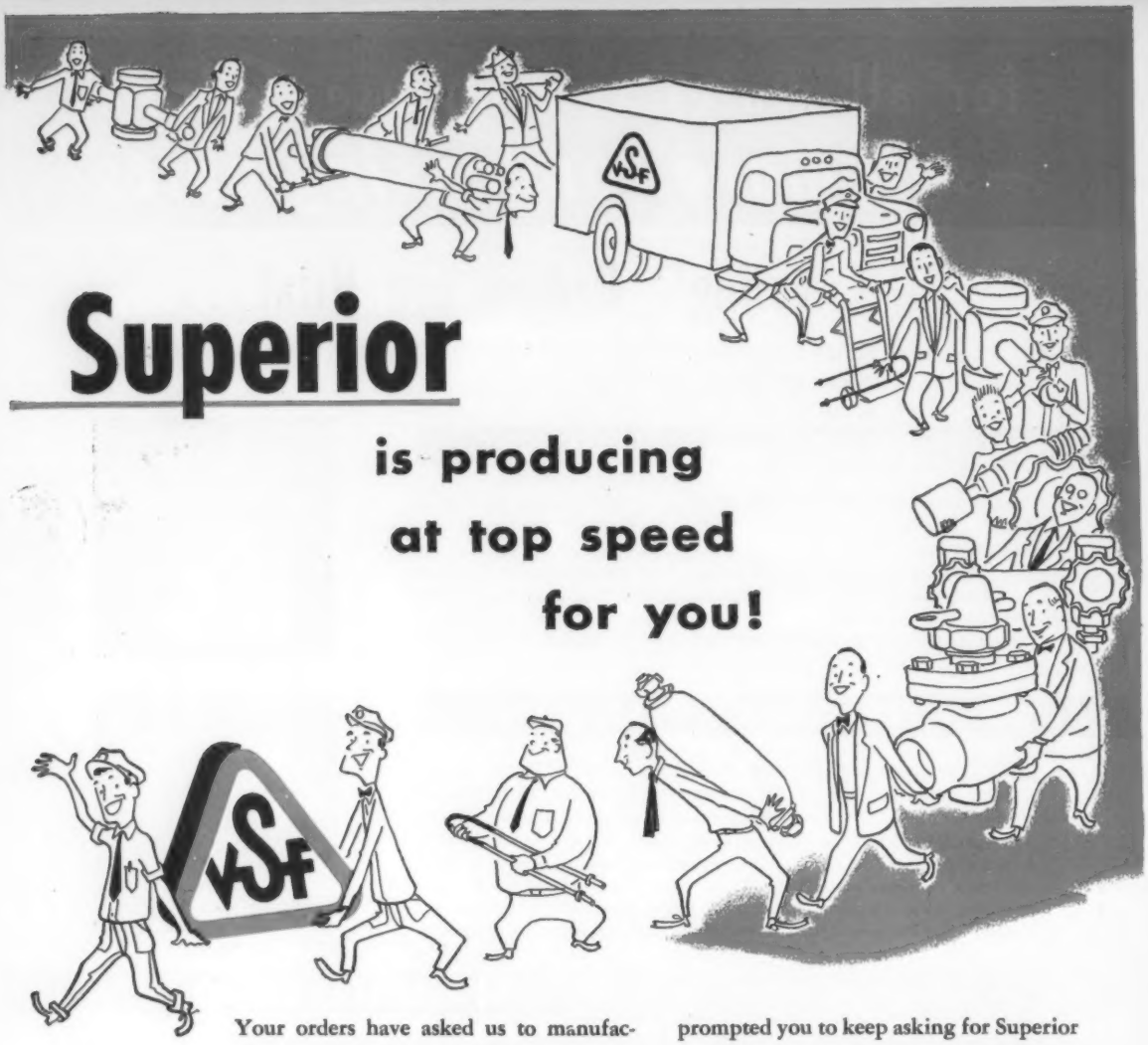

Superior

is producing at top speed for you!

Your orders have asked us to manufacture even more valves and fittings than we have in the past—and we're doing all we can to keep this flow of production continuing to your doorstep. As long as materials last, we'll continue to fill your orders. We somehow feel that the high quality that we maintain, no matter how scarce raw materials become, has prompted you to keep asking for Superior products. And you can be assured that this same high quality and perfect engineering will be built into every valve and fitting we make—even if you must bear with us on occasional delays in delivery dates. Although we're manufacturing at top speed right now, we are doing our best to produce even more for you.

Remember to specify Superior when you see your wholesaler

Superior valve and fittings co.

Pittsburgh 26, Pa.

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ANSUL REFRIGERATION OIL

THE NEW . . . IMPROVED . . . ANSUL REFRIGERATION OIL . . . IS A RESULT OF THE PERSISTENT SEARCH BY ANSUL CHEMISTS AND REFRIGERATION TECHNICIANS FOR THE FINEST QUALITY REFRIGERATION OIL . . . *AT ANY PRICE!*

Since Ansul Refrigeration Oil was introduced in 1949 . . . its acceptance by refrigeration men has continued to expand. In only two short years Ansul is one of the leading refrigeration oils *sold exclusively* through Refrigeration Wholesalers.

The New . . . Improved Ansul Refrigeration Oil is now available at leading refrigeration wholesalers everywhere. It meets, or surpasses, every specification established by Ansul Research for a high quality refrigeration oil.

BUY IT AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

NOTE THESE IMPORTANT ANSUL FEATURES —

a. ***Lower floc point.**

b. ***50% lower wax content.**

c. Moisture — ANSUL CONTROLLED minimum.

d. ***Lower pour point.**

e. Rigidly checked for high stability.

f. ***Lowest affinity for moisture.**

g. New low price.

h. Available in quart, 1-gallon and 2-gallon cans; also in 5-gallon and 55-gallon steel containers.

***Improved features.**

ANSUL CHEMICAL COMPANY
REFRIGERATION DIVISION, MARINETTE, WISCONSIN
ANSUL SULFUR DIOXIDE, ANSUL METHYL CHLORIDE, ANSUL OIL, KINETIC "FREON" REFRIGERANTS
ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS AND DRY CHEMICAL FIRE EXTINGUISHERS

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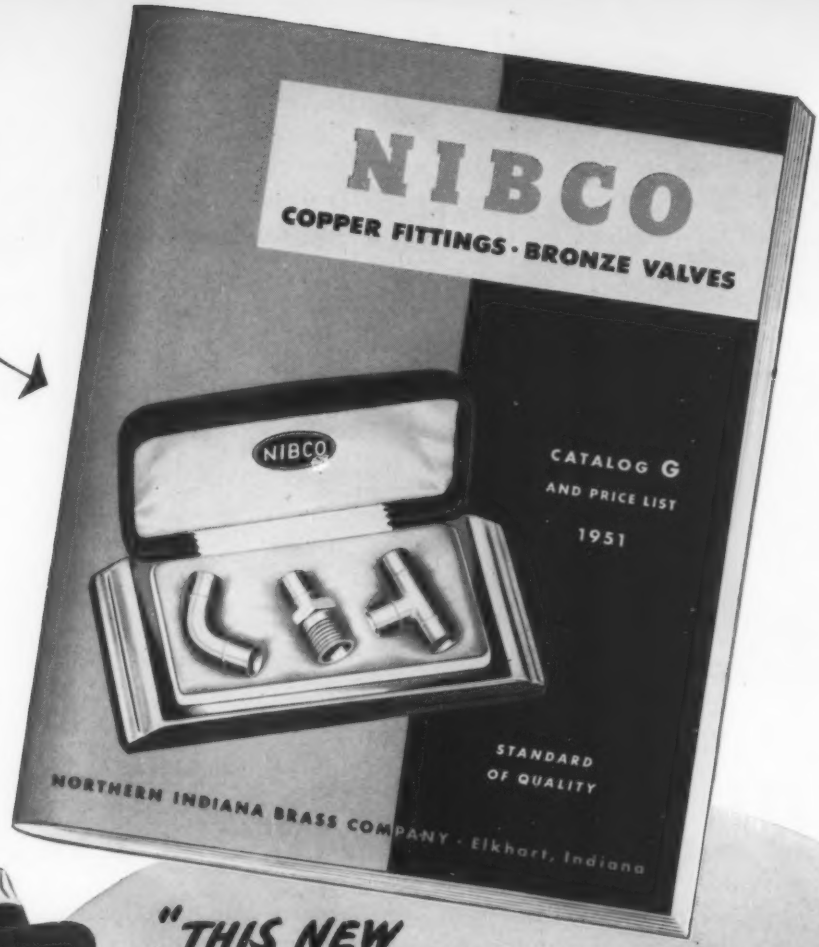


"THIS NEW NIBCO CATALOG HAS MORE STYLES AND SIZES OF VALVES AND FITTINGS THAN EVER BEFORE!"

NIBCO

THERE'S always a NIBCO valve or fitting that's right for every part of the job. That saves bushings, solder and time. Saves space and makes a better installation, too. All these valves and fittings are in this new NIBCO catalog G. Write today for your free copy.

NORTHERN INDIANA BRASS CO.
614 Plum St., Elkhart, Indiana

Rush my free copy of the new NIBCO Catalog G.

Name_____

Address_____

City_____ State_____

Circle No. 22 on Reader Service Card for more information

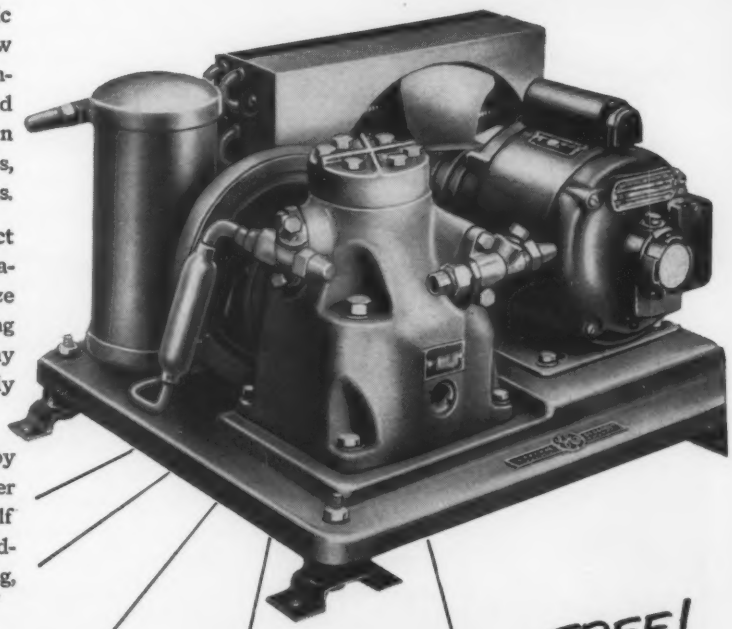
CONDENSING UNITS
AND RENEWAL PARTS

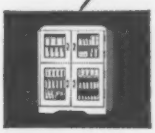
Make Your Installation Jobs Easier with G.E.'s Compact Units

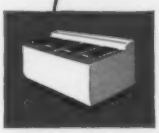
The first time you put in a General Electric Condensing Unit, you will discover how easy it is to install and service. G-E Condensing Units, with their small size and readily accessible service valves, mean more elbow room, fewer bruised knuckles, and less time wasted making connections.

Replacement with one of G.E.'s compact units often makes *extra* refrigeration capacity available without increasing the size of installation space. This extra cooling can help you sell customers whose display cases, cabinets, or reach-ins are currently overloading their condensing units.

The next time you visit your nearby G-E Refrigeration Equipment Wholesaler and Renewal Parts Depot, see for yourself the spacesaving size of G-E Units. Take advantage of their compactness for installing, servicing and selling.







FREE!

DATA ON G-E SEALED AND OPEN UNITS

You can put your confidence in—

GENERAL ELECTRIC

General Electric Company
Air Conditioning Dept., Sec. CR-6
Bloomfield, New Jersey

Please send me literature on ☐ G-E Hermetics ☐ G-E Open Units ☐ G-E Renewal Parts

I am a Service Engineer ☐ Dealer ☐ Manufacturer ☐ Contractor ☐

NAME.....

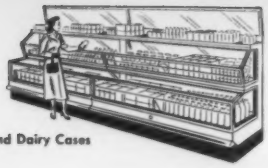
COMPANY.....

ADDRESS.....

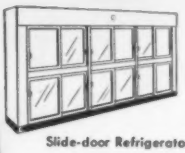
CITY.....ZONE.....STATE.....

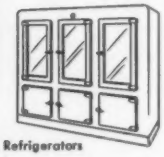
Circle No. 23 on Reader Service Card for more information

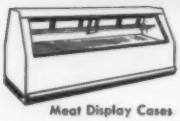
Open Vegetable Cases


Open Meat and Dairy Cases

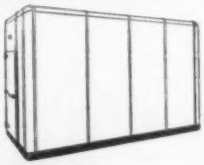
TYLER
FOR FOOD REFRIGERATION


Slide-door Refrigerators


Reach-in Refrigerators


Meat Display Cases

Open Frozen Foods Display Cases


Walk-in Coolers

Food Freezers—Upright

Food Freezers—Chest

This 28-page illustrated booklet gives complete data on Tyler facilities—part of which will be available for defense work.

OVER 400 MODELS in the Tyler line of Commercial Refrigerators of all types!

The regular Tyler line meets every essential food refrigeration requirement for food stores, restaurants, hotels, institutions. Recent developments include open, refrigerated display cases with High Level Refrigeration and other Tyler features—for fast, self-service merchandising of meats, vegetables, dairy products. Save time for clerks—save time for customers!

FOR DEFENSE PRODUCTION FACILITIES
—wire, phone or write Tyler Contract Dept. today!

TYLER
FLEXIBLE PRODUCTION FACILITIES

Tyler Fixture Corp., Contract Dept. RI-6 Niles, Michigan

Niles, Michigan

Cobleskill, N. Y.

Waxahachie, Texas

Circle No. 24 on Reader Service Card for more information

LETTERS

Anti-Freeze Compound

EDITOR:

We have a letter from Mr. J. W. Garrett, President, Gateway Creamery Co., Joplin, Mo., stating they are having difficulty with one of their hardening room doors sticking and would like to know where to purchase some anti-freeze compound.

They did write to Stanco, Inc., 15 W. 51st St., New York, but say the letter was returned unclaimed. Do you know of a source of supply for this product?

C. J. LINDEN
Vice President
Olsen Publishing Co.
Milwaukee, Wis.

We have received the following reply from Penola Oil Co., an affiliate of Standard Oil Co. of New Jersey, which formerly produced a product called "Thors" which was used for this purpose:

"Some months ago we discontinued the manufacture and marketing of Thors. There is a possibility this product may be taken on by another company in the near future."

Makes Insulation Paint

EDITOR:

Would you be so kind as to send us the address of the manufacturer of "NoDrip" insulation paint?

E. C. KENNEDY
J. B. Thomas Co., Inc.
Nashville, Tenn.

"NoDrip" insulation paint is manufactured by J. W. Mortell Co., 528 Burch St., Kankakee, Ill.

Needs Frost-Air Parts

EDITOR:

We have Frost-Air refrigerator Model HF-A, Serial No. 2883. Please advise name and address of manufacturer. We need repair parts. A. L. Franklin, Standard Scale & Fixture Co., Inc., Tampa, Fla.

A. L. FRANKLIN
Standard Scale & Fixture, Inc.
Tampa, Fla.

The "Frost-Air" refrigerator to which you refer was produced by a company which several years ago was absorbed by Deep Freeze div., Motor Products Corp., 2301 Davis St., N. Chicago, Ill.

We understand that most, if not

A COMPLETE LINE

The completeness of the Universal Cooler line (unmatched in the industry in sizes through 15 H.P.) is another advantage awaiting you wherever you see the Universal Cooler sign displayed across the nation. There is a type and size for the unusual applications as well as a wide selection of sizes for standard jobs.

A DEPENDABLE PRODUCT

Wide customer acceptance and Universal Cooler's good name in the industry are evidence of the dependability of products sold under the Universal Cooler name. Top quality condensing units are for sale wherever you see the Universal Cooler sign.

REPLACEMENT PARTS IN STOCK

Universal Cooler and its authorized wholesalers both recognize the importance of keeping replacement parts readily available for use in field servicing. Wherever you see the Universal Cooler sign, genuine Universal Cooler replacement parts are carried in stock.

A RELIABLE WHOLESALER

Wherever you see the Universal Cooler sign, you will find an experienced, reliable wholesaler, prepared to furnish responsible, competent attention to your needs. He and Universal Cooler work together closely to furnish unsurpassed products and services in his community. Look to him with confidence for Universal Cooler condensing units and genuine replacement parts.

UNIVERSAL COOLER DIVISION

TECUMSEH PRODUCTS CO., TECUMSEH, MICH.

MARION, OHIO

EXPORT DEPT.: 2111 WOODWARD AVE., DETROIT 1, MICH.

Circle No. 25 on Reader Service Card for more information

Genuine Joe says:

It's Profit-wise to stock Wagner Standard Rotors

You can save real money by replacing burned-out rotors on small motors instead of trying to rewind them—you move them out fast and keep your winders free for larger jobs that make more profit for you.

Wagner standard rotors make replacement a simple 1-2-3 job. There's no guesswork involved—the *exclusive* "tell all" label on the Wagner Rotor Package, when used with Wagner's K & M specification lists, assures the *right choice every time!*

Write for your copy of these specification lists and for Catalog MU-40.

WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

Wagner Electric Corporation 1891 1951

MOTORS · BEARINGS · STANDARD ROTORS
BRUSHES · CAPACITORS · COMMUTATORS

650 AUTHORIZED SERVICE STATIONS OR PARTS DISTRIBUTORS

MS51-3

Circle No. 26 on Reader Service Card for more information

LETTERS

all, Deep Freeze distributors have parts for these units available, but if you will write directly to Ben Sanderson of Deep Freeze at the address given above we are sure that he can tell you the nearest available source for the parts you need.

Change-Over to F-12

EDITOR:

We are much interested in the change-over from F-114 and F-22 to F-12, especially as to horse-power drop and evaporator capacities.

Can you tell us where we may find this information? Our sources have only short paragraphs on these refrigerants.

HENRY C. WAITE
Refrigeration Instructor
Veterans' School
Erie, Pa.

We are advised by Kinetic Chemicals Div., E. I. du Pont de Nemours & Co. that this subject is covered in Kinetic's Technical Paper No. 11. A copy of this paper has been sent to Mr. Waite and additional copies are available from Kinetic Chemicals for other refrigeration men who have need for them.

Aid for the Air Force

EDITOR:

I received your magazine today. Have read it from cover to cover. I work for the U. S. Air Force in the capacity of refrigeration and air conditioning foreman. At present I am at Ellison A.F.B., 26 miles from Fairbanks, Alaska.

I think it's a good publication. It was sent by compliment of Mr. Stern of Refrigerative Supply, Inc., Seattle, Wash.

DOUGLAS L. MILLER

UNITED EXPORT REPS

United Refrigerator Co., Hudson, Wis., has announced the appointment of Scheel International, Inc., Chicago, as export representatives for the United line of bottle coolers, beer dispensers, ice cube makers, upright freezers, reach-ins and walk-ins except in Hawaii, Canada and Puerto Rico on beer dispensers.

Chase Copper Refrigerator Service Tube (⅛" to ⅜" diameter) comes in this handy new package . . . makes it easy to use, store, identify and ship.

. . . *Because It's* CHASE COPPER REFRIGERATOR SERVICE TUBE

You, too, will prefer Chase Copper Refrigerator Service Tube—from the first time you use it! You'll find it easy to work because it's soft . . . easy to bend because of its uniform temper. Controlled annealing means tube that is clean, bright, oxide-free.

The new Chase end seal keeps it clean and dry inside. Made in ⅛" to ¾" diameters and standard 50′ lengths.

Chase BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• *The Nation's Headquarters for Brass & Copper*

Albany†	Cleveland	Kansas City, Mo.	New York	San Francisco
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Boston	Detroit	Minneapolis	Providence	
Chicago	Houston†	Newark	Rochester†	(†sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	

Circle No. 27 on Reader Service Card for more information

"the destructive pair" that cripple PRESSURE-LUBRICATED COMPRESSORS

It's a sad story when either of "the destructive pair" . . . low oil pressure or slow pickup of oil pressure . . . go to work on a pressure-lubricated compressor. When that happens, damage to seals and bearings may result, even in the best of refrigeration compressors.

But, you can stop "the destructive pair" from their crippling work with the new PENN Series 275 Oil Protection Control with built-in Time Delay Switch.

Here's how it works. When compressor starts, if the oil pressure does not build up to the proper point within a safe time period, the PENN 275 stops the compressor *automatically* before damage can occur. If oil pressure drops below a safe minimum during the running cycle . . . and does not rise to normal within the time delay period . . . the control stops compressor operation. Thus, the compressor never operates more than the predetermined safe time on subnormal oil pressure. Result? Positive, automatic protection at all times!

Investigate this new, low-cost protection for refrigeration compressors or for other pressure-lubricated equipment. For complete information ask your compressor manufacturer or wholesaler or write **Penn Electric Switch Co., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U. S. A. In Canada: Penn Controls Limited, Toronto, Ontario.

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

Circle No. 28 on Reader Service Card for more information

BTU NEWS · LAWS · TRENDS

MORE THAN 30,000 ENGINEERS must be graduated from engineering schools each year if the United States is to have the trained manpower it needs to out-design, out-develop, out-produce and out-perform a potential enemy. This is the word from the Engineering Manpower Commission of the Engineers Joint Council, which has sent copies of a leaflet and pamphlet to more than 23,000 high school principals throughout the country, urging them to direct qualified seniors into engineering schools. Since the "mortality" in engineering schools is about 50%, the E.M.C. estimates that an annual freshman enrollment of 60,000 would be needed to produce the 30,000 graduates needed each year. This is double the number that have enrolled during this year. The most optimistic estimate is that, according to present college enrollment, there will still be an accumulated shortage of 40,000 engineers by 1954. Where's that guy who said engineers were in over-supply?

MAN-MADE WEATHER FOR WEATHER MEN is provided by the 20-ton air conditioning system installed at the new Storm Warning Station at Lackland Air Force Base in San Antonio, Texas. Installation was made by A. J. Monier & Co. of San Antonio, and is powered by an AF-20 Schnacke compressor. Similar installations are being made at other Storm Warning Stations in Montana, Nebraska, Michigan, Pennsylvania, and various islands in the Pacific.

SOME PLACE TO GO for information on defense production problems, a "Defense Production Inquiry Center," has been set up by National Production Authority and Defense Production Administration in the main lobby of the old GAO Building, 5th and G Streets, N.W., in Washington. This doesn't mean that you'll have to go to Washington for all the answers to your defense production problems; field offices of the Department of Commerce throughout the country will continue to supply that. But it will provide a central place for business men, or their Washington representatives, to get quick answers to their questions. Persons staffing the Inquiry Center, if they don't know the answer, will arrange for appointments with NPA or DPA officials who do.

ENGLAND WILL PLAY HOST to the Eighth International Congress of Refrigeration scheduled to be held in London from August 29 to September 11, 1951. Plans for the conference are well under way by the International Institute of Refrigeration. A proposed reorganization plan has been submitted to the Institute by its director, Maurice Piettre, which would permit the central office to more efficiently carry out the many responsibilities placed on it by the Seventh International Conference held at The Hague in 1936.

A PAINT THAT CUTS HEAT as well as glare has been developed by a New York paint producer. Called "Sunshade Blue," the paint forms a permanent bond on glass, is translucent, and dries rapidly to form a weather-proof frosted coating which may be applied by either brush or spray-gun. Windows coated with this paint, the company says, help lower cooling costs on air conditioned or refrigerated buildings, packing plants, ice plants, and the like. Besides this, the soft blue color is relaxing, and relieves eyestrain and tension in workers, the company claims.

AGGRESSIVE SELLING is going to be needed more than ever before in the months to come, Alex M. Lewyt, president of Lewyt Corp., vacuum cleaner manufacturer, told New York ASRE members at a recent dinner meeting. "Sales resistance," Lewyt said, "cannot help but mount in direct ratio to increased cost of living and taxes. Manufacurers will make a serious mistake if they think that decreases in production of consumer goods under defense mobilization will create a ready market for everything they can turn out." He said that his company had doubled its advertising appropriation this spring, and would fight harder than ever for business in 1951.

Modern Restaurants Need Modern

DEFENSE construction restrictions being what they are at present, you're not likely to see a rash of new restaurants going up in your community, unless they represent a pretty close tie-in with overall community needs. But there's still a whale of a market for refrigeration equipment in the restaurant field.

That market is among the food-service establishments now operating —and it centers around the replacement of old, inefficient equipment with new, modern equipment that will save the restaurant operator time, money and headaches.

A good example of what the modernization of a restaurant's refrigeration equipment can do for it in terms of improving efficiency, cutting down waste and speeding customer service is Stone's Grill, in Akron, Ohio, one of the early units in that company's chain of restaurants.

The equipment was installed under the supervision of O. H. Wetzel, who is supervisor of refrigeration for the Stone Grill Co.'s chain.

The restaurant's original refrigeration equipment, which had been in use for something like 15 years, was removed and the new equipment installed during a two-week period when the restaurant was closed. Besides the remodeling of the refrigeration setup, a new 20-ton air conditioning system was installed by the Frigidaire Cleveland branch. This system uses two 10-ton compressors, arranged in series so that only one unit operates when cooling requirements are light. Air distribution is by ceiling ducts. The new system replaced a previous plant using a 10-ton and a 5-ton compresser.

The remodeled refrigeration equipment arrangement makes use of eight Brunner condensing units, ranging in size from ⅓ hp to 1½ hp. In the original system, all of the restaurant's equipment, except for a walk-in box on the second floor kitchen and two self-contained items, was served by two 3 hp. compressors using methyl chloride as the refrigerant.

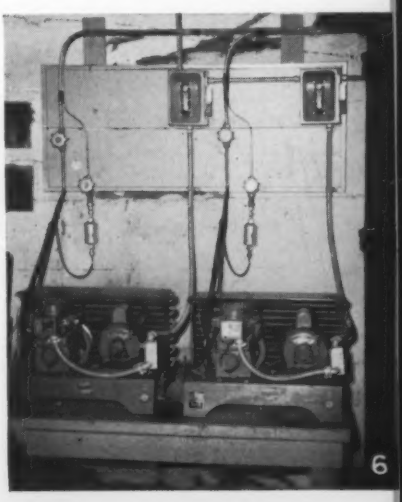
Perhaps the best way to get an idea of the extent of the modernization program that the restaurant accomplished, and the amount of equipment that was involved, is to make a side-by-side comparison of the restaurant's refrigeration facilities before and after remodeling.

First, the bar section. Original equipment included one four-tap beer dispenser, using two M25B2W2 Temprite units; two water stations equipped with Temprites for the dining room; four cabinet-type bottle cooler chests, each of about 8-case capacity; a back bar section; a salad section; and a wood refrigerator of about 30 cu. ft. capacity.

This equipment was replaced by

. . . and where it doesn't

Here are the Brunner condensing units that serve the restaurant's equipment: (6) two 1/3-hp machines, the first serving the reach-in refrigerator and the second, the salad counter; (7) a 1/3-hp machine handling the salad display unit, and the 1-hp water-cooled compressor that takes care of the drinking water stations; (8) a three-machine lineup including 1/3 and ½-hp machines for the two bottle boxes, and in the center a 1½-hp unit that refrigerates the beer and mix dispensers and the walk-in pre-cooler room. (9) Manager G. A. Hofmann checks controls inside the pre-cooler.



Where it shows . . .

Modern restaurants depend for successful operation on refrigeration equipment like that shown here. This includes:

1. **Reach-in units for storage of salad ingredients and other general purpose storage.**
2. **A salad display refrigerator, usable also for dairy products. Ice cream cabinet and ice cube maker (far right) are other needed equipment.**
3. **A refrigerated salad counter, with more storage space below.**
4. **Drinking water stations, conveniently located in the serving areas.**
5. **Beverage coolers, and draft beer and "mixer" dispensing facilities.**

Equipment

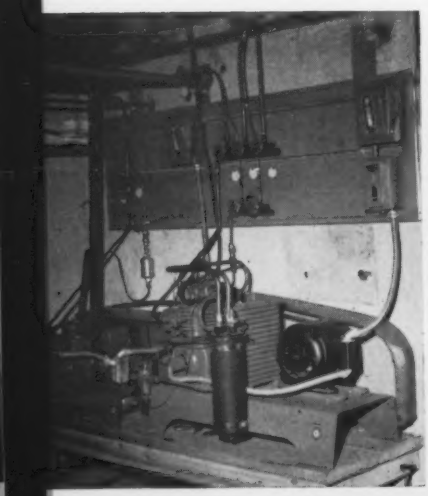
one three-tap beer dispenser using one F29B3W2 Temprite unit; two water stations using F22W Temprites, both connected to a Bunner W100FC 1 hp machine; A Tyler 10-foot bottle case, connected to a Bunner A50FC ½ hp machine; a Tyler 8-foot bottle case connected to a Bunner A33FC ⅓ hp unit; a Puffer-Hubbard P42 reach-in refrigerator, served by a Brunner ⅓ hp machine; a Puffer-Hubbard salad display, also served by a Brunner ⅓ hp unit; a custom-made salad section, connected to a ⅓ hp Brunner unit; and a York ice cube machine, self-contained.

In the kitchen, under the old refrigeration arrangement, was a wood refrigerator of about 60 cu. ft. capacity, and on the second floor were two more wood refrigerators, sized at about 75 cu. ft. and 30 cu. ft., respectively. Also on the second floor were a walk-in box, served by a ¾ hp machine, and a self-contained low-temperature cabinet. These two items were not changed in the remodeling program.

In the basement, under the original arrangement, was a beer pre-cooler, with blower coil, and the two 3-hp methyl chloride compressors that served all the individual items of equipment except those that were self-contained. A self-contained flake ice machine also was installed in the basement.

The beer pre-cooler is still installed in the basement, but it has been completely refinished and equipped with a Kramer KT 159 coil. Beer Temp-

Continued on page 98



How To Solve a Problem Of Water Cooling Capacity

Problem—What storage and what size condensing unit is required for a factory cafeteria serving 300 employees in one hour that wants water reduced from 80 to 45°? (See Table No. 1), 300 employees × .1 gal = 30 gals required in one hour. Without storage this job would require 30 gals × 291 Btu = 8730 Btu. (See Table No. 2.) Question: What storage and what horsepower condensing unit is required? A 10% safety factor should be added to the Btu requirements, making a total of 9603 Btu's. From Table No. 1 the recommended storage is 22 gallons which is equal to (291 Btu × 22) 6402 Btu's in storage. This leaves only 3201 Btu hr to be supplied by a condensing unit. This means a reduction in size from ¾ hp to ⅓ hp, showing the definite value of storage.

Note: In two-hour peak periods the value for storage should be considered as 50% of manufacturer's rated capacity.

TABLE No. 1

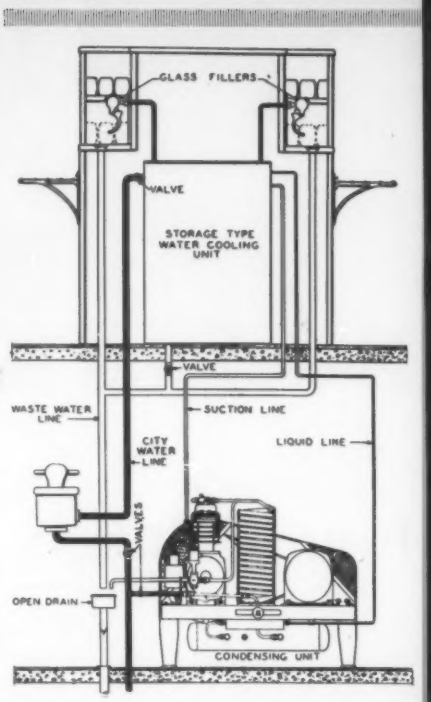
Requirements for various types of service

Service		Water Required	Recommended Temperature	Storage Required
Restaurant	.1	gal/person/hr	40-45°	
Soda Fountain	.25	gal/hr/seat	40-45°	
Sandwich Bar	.25	gal/hr/seat	40-45°	Storage in gals. should equal or exceed three-quarters of hourly requirements
Diners	.25	gal/hr/seat	40-45°	
Cafeteria				
Public	.083	gal/hr/person	40-45°	
Schools	.083	gal/hr/person	40-45°	
Office-Factory	.1	gal/hr/person	40-45°	

TABLE No. 2

Btu's required to cool one gallon of water

Inlet Temp.	Outlet Temp.	Btu's required per gal
70°	40°	250
	45°	208
	50°	168
80°	40°	333
	45°	291
	50°	250
90°	40°	416
	45°	373
	50°	333



CHILLED

By C. F. Hansel

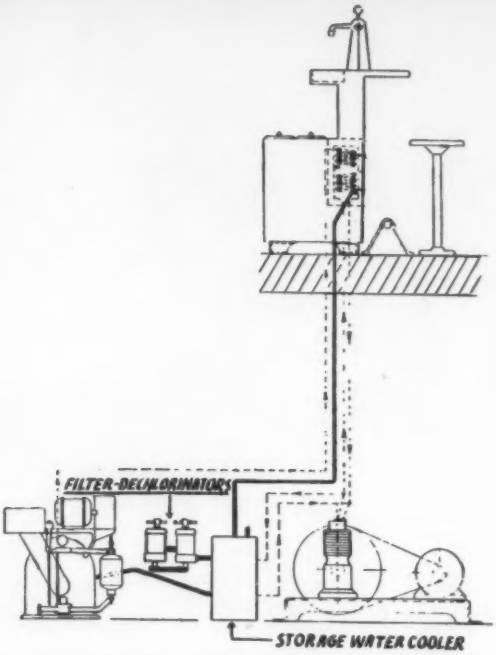
President, Filtrine Mfg. Co.

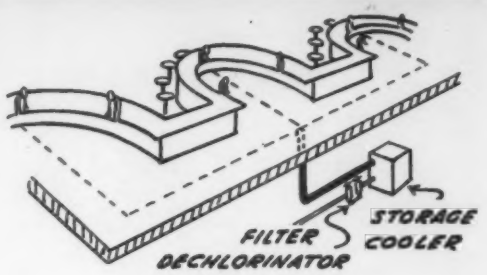
BEFORE we get into a discussion of the service of properly chilled drinking water in restaurants, we want to make clear that by the term "restaurant" we mean simply "a place to eat." There are many types and sizes of food service establishments, and each type has its own individual drinking water problems. There are, for example:

A. Restaurants . . . table service
- A-1 Sandwich Bars.
- A-2 Soda Fountains.
- A-3 Counter and Table.

B. Cafeteria . . . self service
- B-1 Public.
- B-2 Office—Factory.

In general, under restaurants come those eating places where a glass of





LEFT—A heavy-duty cooler for cafeterias, offices, or factories. This unit has a large storage cooler located within the cabinet, close to the point of dispensing, with the condensing unit located remotely.

CENTER—A storage cooler used to supply chilled water to a carbonator and to "boost" built-in sweet water coolers. Every soda fountain is a miniature bottling plant and should be equipped with adequate water cooling and water conditioning equipment.

ABOVE—This hook-up illustrates one means of circulating chilled and conditioned drinking water to a number of outlets, whether all on one floor or on several floors. This method has many advantages over individual units when dispensing locations are numerous.

WATER FOR FOOD SERVICE

water is served to each patron by an attendant.

Cafeteria takes in self-service, and may or may not include a glass of water or a drink from a bubbler to each patron.

The importance of properly prepared and served drinking water for restaurants is demonstrated by considering that it is presented by the management when a patron first sits down and again just before he leaves.

By many operators of successful establishments, the perfect glass of water is presented with a promise of good things to come. The glass is kept filled as a token of gracious hospitality. Sparkling, chilled water, in a gleaming frosty glass, is the "engraved-calling-card" of all discerning food service operators.

The demand for drinking water at restaurants and cafeterias, like food, comes in peak 2-hour periods. Whether the peak comes once, twice, or three or more times a day depends on the individual restaurant, but it is always a "peak." Whether glasses are filled from faucets, or pitchers filled from faucets, the rate-of-flow is large and must be considered.

"Peak-requirements" and "large per minute-flow-rate" are the two fundamental capacity requirements that must be considered.

Temperature reduction is of prime importance. Americans like their water cold. Most operators want their water served at 45°. Appearance and taste of water is just as important as temperature. Filters are installed to remove iron rust and suspended matter and rectifier-dechlorinators to remove chlorine taste, and make the water sparkle.

Storage—Refrigeration engineers and restaurant specialists have long recognized and agreed that large storage of chilled water, ready and waiting to be withdrawn at fast rates, during one and two hour peaks, is the proper way of meeting restaurant drinking water requirements.

Relatively low horse power refrigerating machines can be used if large storage is provided. Off-peak operation permits building-up large hold-over storage with which to meet peak demands. Long-cycle operation makes for efficiency, long life, quiet operation and low operating cost.

Different types of coolers for different applications—Restaurant table service requires the filling of carafes or pitchers. The filling stations are generally a part of the serving pantry, and are usually supplied from remote coolers or by circulating systems.

Continued on page 92

THE "HARDWARE" SIGN ON THE WINDOW OF THIS LITTLE GENERAL STORE PROVES THAT MANY A SMALL TOWN MERCHANT MAY BE . . .

Another Good Fountain Prospect

A SODA FOUNTAIN in a hardware store?

Well, why not? After all, is it any more illogical for a hardware store to serve sodas than it is for a drug store to sell pots and pans?

Actually, hardware and general stores in small communities offer the commercial refrigeration equipment dealer and contractor a promising sales field. Soda fountain and luncheonette business ties in neatly with the grocery and general merchandise departments operated by many suburban and rural stores.

As a case in point, let's take a close look at the Bath General Store in Bath, Ohio, where a complete soda fountain installation was installed by J. P. Stewart Co., Cleveland distributor of commercial refrigeration equipment. This job received quite a bit of publicity at one time, and here's how it all came about.

At the 1950 convention of the Ohio Hardware Association, held in Cleveland, one of the principal speakers reported that several out-of-state hardware stores had added soda fountains, and recommended that Ohio hardware merchants would do well to follow this example as a means of adding profit dollars.

A Cleveland metropolitan paper reported the convention speaker's suggestion with an obvious chuckle. "You may soon be sipping your chocolate soda amid lawn mowers and paint cans," the article quipped.

Having spotted this article, John P. Stewart, head of the distributorship which bears his name, promptly called the city editor. "That idea isn't as funny as you think," Stewart told him. "We installed a soda fountain in a hardware store in Bath, Ohio, a year and a half ago."

The daily paper then ran a follow-up story which featured a photograph of the soda fountain conspicuously located in the Bath store with the word "Hardware" printed in big letters all across the show window in the background.

The Bath General Store is located in a suburban community of some 2000 population situated about 25 miles southwest of Cleveland. True to its name, the store sells everything from soup to dynamite.

The store's alert general manager, H. L. Caylor, had a good merchandising background. As a former manager for a five-and-dime concern he was well aware that a store's chance of success depends largely on the principle of filling every bit of available space with something that will pay off.

A wheezy old soda fountain had been an eyesore in the store for sometime, and it definitely was *not* paying off.

The new 8-foot fountain was installed against one wall near the show window, where it could be readily seen from the street. Adjacent to it

Continued on page 84

KEEP REFRIGERANTS *dry and clean*

WITH MUELLER BRASS CO. DELUXE DRIERS

Extra-capacity cone-screen filter unequalled for efficiency in the refrigeration industry.

FORGED BRASS ENDS
Heavy duty type with husky wrench flats.

INLET CONTAINER SCREEN
Positive desiccant retainer without pressure drop.

DRYING AGENT
Installed under strict laboratory control with sealed charging equipment.

OUTLET RETAINER SCREEN
By itself, equal to the filter elements in most ordinary driers.

LOCKED-IN CONE OUTLET SCREEN
Extra capacity free flow strainer surface.

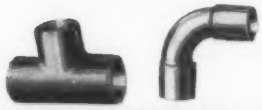
FILTER BED
Chemically cleaned wool mass traps fine metallic grit or other foreign particles.

WHITE WOOL DISC
Doubles filtering capacity.

The millions of Mueller Brass Co. Deluxe Driers that are now in service provide the kind of proof you want—proof that no other drier can approach for all-around efficiency on-the-job, and for good reason. The Mueller Brass Co. Deluxe Drier is a typical example of the dependability and quality that Mueller laboratory and development engineers have made available in so much refrigeration equipment. The famous cone screen filter greatly increases the Deluxe Driers' working life. The filter strainer unit of the Deluxe Drier removes every minute particle of foreign matter from the line—keeping the refrigerant completely clean as well as dry.

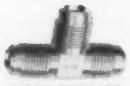
Order now from your refrigeration wholesaler.

Have these STREAMLINE products on hand for every job where you want dependable performance.

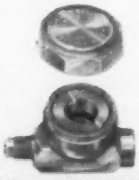


WROUGHT COPPER FITTINGS

VALVES



FLARE FITTINGS



LIQUID INDICATORS

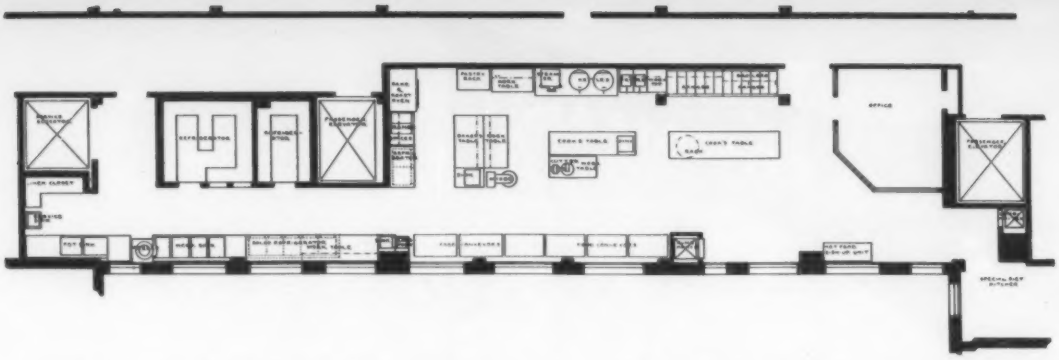
STREAMLINE refrigeration products are individual and multiple packaged for complete protection.

Write for catalog R-151 describing complete line of STREAMLINE refrigeration products.

63

MUELLER BRASS CO. PORT HURON 12, MICHIGAN

Circle No. 29 on Reader Service Card for more information



HERE'S THE LAYOUT of the Missouri Pacific Hospital kitchen, for which Nachman & Co. furnished all the major equipment.

GET INTO THE KITCHEN

with a "kitchen engineering" service that takes care of your commercial and industrial customers' complete food-service requirements, in addition to refrigeration and air conditioning. This St. Louis contractor, who's been at it for a couple of years, says it's a "natural tie-in" with his normal sales activities

A "Kitchen Engineering" department, part of a planned program of diversification of its merchandising and sales efforts in the commercial refrigeration and air conditioning field, is proving its way as a "paying partner" in the overall operation of Nachman & Company, St. Louis refrigeration and air conditioning contractor firm.

What is kitchen engineering? Well, in the household refrigerator field, you'd call it "kitchen planning". Only in this case the planning involves the engineering and designing of complete food production centers for the preparation and serving of hundreds—and sometimes, thousands—of meals every day.

Actually, as far as Nachman & Co. is concerned, expanding its services to include kitchen engineering for commercial and industrial customers meant only the addition of cooking and allied equipment to the refrigeration and air conditioning equipment it had long been selling.

In the words of Leslie Nachman, who heads up the company's kitchen engineering activities, "for profitable success in air conditioning contracting, you have to diversify. In going after a ramified market, the air conditioning contractor, we have found, can increase his business—and his profits—by including related services that tie-in, in one respect or another, with his principal air conditioning activities."

Heating equipment, the company has found, is a natural adjunct to air conditioning, since the simple addition of a boiler and steam coils converts an air conditioning system into year-around heating and cooling service. The kitchen engineering activity, however, is a tie-in activity of another sort, but one which has been equally productive of additional business.

This department of the Nachman company has been in operation for only about two years. It was started, Leslie Nachman explains, "when we saw an opportunity for commercial cooking and food preparation equipment as a normal addition to our commercial refrigeration business, which furnished equipment for commercial food serving places, and as a speciality addition to our air conditioning work."

The kitchen engineering department is built around electric cooking equipment (Hotpoint), and in the short time it has been in operation has put the Nachman concern in the No. 1 position in the St. Louis area in the sale of this type of equipment.

"We call our operation a 'kitchen engineering' department and we mean it," Leslie Nachman says. "We're not a 'pots and pans' concern. Our speciality is the big kitchen equipment, plus a complete planning service, and, of course, commercial refrigeration equipment".

It should be explained here that

the Nachman & Co. kitchen engineering operation is not by any means a "lone wolf" affair, in the sense that the company does this type of work only on the jobs it has planned. Close cooperation is maintained at all times with architects who specialize in this type of application, just as the same cooperation is kept with architects in relation to air conditioning applications.

The company is, however, equipped to do a complete remodeling job on old-fashioned, obsolete commercial kitchens in hotels, restaurants and hospitals, plus "from the ground up" design of restaurants, cocktail lounges, etc.

The importance of the kitchen engineering division is well illustrated, Leslie Nachman points out, by the fact that wherever a major kitchen remodeling or new construction project has been carried out, it has invariably led to installation of an air conditioning system, such as the $85,000 job completed at the Missouri Pacific Hospital in St. Louis shortly before the turn of the year.

A "Natural" Tie-in

Nachman believes that an excellent potential exists today in tieing-in air conditioning equipment with the application of commercial cooking and refrigeration equipment in food-serving establishments. And for a good example of this tie-in, he points to the Missouri Pacific Hospital installation.

He claims that this is the first completely air conditioned hospital kitchen in the world, and that it is one of the first air conditioned kitchens regardless of location. The kitchen uses 30 tons of Curtis air conditioning equipment (two 15-ton machines), which is located in a penthouse on the roof of the building. The penthouse also houses ventilating and heating equipment, an evaporative condenser and exhaust system for the cooking areas.

The roof installation was made to conserve kitchen space; as another space-saving move, one wall of the kitchen was moved back 3 feet, decreasing the size of an outside corridor, and a 5-foot false ceiling was installed.

Air conditioning for commercial kitchens would not be practicable, Nachman says, except for electric cooking equipment. The heat load,

Continued on page 61

THESE WALK-IN UNITS, with special reach-in compartments to make it easier to get at the items most wanted, are of stainless steel construction. They are held at 38 F. Sanitation being of utmost importance in a hospital, all walls in the kitchen area are tiled to allow easy cleaning. The walk-ins have recording thermometers so they can be checked at any time to see that proper storage temperatures are being maintained. Signal light indicate when inside lights are on.

REFRIGERATED SALAD COUNTER area, (above) comprising 30 feet of stainless steel equipment, is located opposite the walk-in refrigerators, and provides space for salad and vegetable preparation. The kitchen is air conditioned by a 30-ton Curtis system, and is thought to be the first installation of its kind in the country. (Below) a dietician prepares a patient's food in one of the hospital's special diet kitchens, which also have separate refrigeration units.

about PEOPLE

Thomas H. Hart has been appointed district representative for McIntire Connector Co. in the southeastern territory, with headquarters in Atlanta. Hart has been associated with the refrigeration industry for many years, having been an instructor in air conditioning, a sales engineer for Detroit Lubricator Co., and chief engineer for Buckeye, Inc., National Fan and Blower Co., and the Warren Co.

●

O. K. McCullough has been appointed representative for Schnacke, Inc., in the Kansas City territory. He has had broad experience in the heating and air conditioning field, having been employed in Chicago and Kansas City for a number of years, entering his own business in 1939 in Kansas City.

●

William Helm has been appointed district sales manager of a district sales office being established in Milwaukee by Century Electric Co., St. Louis. The office is located at 2400 W. Clybourn St. Helm has had 10 years of experience in sales and application work in Century's Atlanta and St. Louis offices. He replaces C. R. Price, resident sales engineer in Milwaukee for 30 years.

●

Thomas O. McDavid and **Carl J. Zink** have been elected vice presidents of Commercial Credit Corp. They will be responsible for further developing the company's national activities in the industrial field comprising home appliances, television and radio sets, air conditioning and commercial equipment according to E. C. Wareheim, president of Commercial Credit Co., the parent organization. Zink has been with Commercial Credit for 26 years and McDavid for 20 years.

●

Fred H. Angier has been appointed district manager for the Philadelphia and Baltimore factory branch offices of General Controls Co., according to J. F. Ray, vice president in charge of sales. Angier, who formerly was Baltimore branch manager, will cover the territory comprising the District of Columbia, Maryland, Virginia, West Virginia, eastern Pennsylvania, lower New Jersey and Delaware. His headquarters will be in the Philadelphia office at 1238 Spring Garden St. **J. B. Crandley,** formerly an engineer in the Philadelphia office, has succeeded Angier as manager at Baltimore.

●

John A. Graham, Jr. has been appointed coordinator of advertising for Liquid Carbonic Corp., Chicago. The position replaces the office of advertising manager, formerly held by **Bernard J. Ooe.**

●

Capt. Thomas H. Urdahl, USN (retired) has been elected vice president of W. B. Connor Engineering Corp., Danbury, Conn. Capt. Urdahl has been active in the development and design of electrical and power systems in the field of heating, ventilating and air conditioning over the past 25 years. During World War II he was chief of the Air Conditioning Section, Bureau of Ships, USN.

●

R. N. Hill has been appointed vice president in charge of operations for Century Electric Co., St. Louis. A member of the board of directors, he has been associated with Century since 1920. Joyce Pillsbury, son of E. S. Pillsbury, president, was named a director and assistant secretary.

●

J. H. Skipper has been promoted from sales supervisor to district commercial sales manager of York Corp.'s southern district, replacing W. B. Cooper, who resigned recently. Skipper since 1945 has been sales supervisor for York in the Charlotte, N. C., zone, and previously was with the U. S. Division Engineer Office at Columbus, Ohio; with Frigidaire distributors Herbert Roberts, Fort Smith, Ark.; W. P. Galloway Co., Little Rock, and a Frigidaire field supervisor.

●

Dudley B. Robinson has been appointed general sales manager of the Torrington Mfg. Co., Torrington, Conn. He succeeds **Donal G. Leslie,** who recently resigned this position.

●

Carl E. Corbin, formerly vice president and sales manager of Viking Refrigerators, Inc., Kansas City, has been named executive vice president and general manager. E. L. Stultz, retiring as president, has been named board chairman of Viking, and Arthur S. Bird was named president. In other official changes, Welch Jensen

Continued on page 93

We doubt that *any* bird is that wise—even an owl. But if birds *did* enjoy air conditioning, you can bet they'd want Honeywell controls!

Practically everyone else does—both the public and the trade.

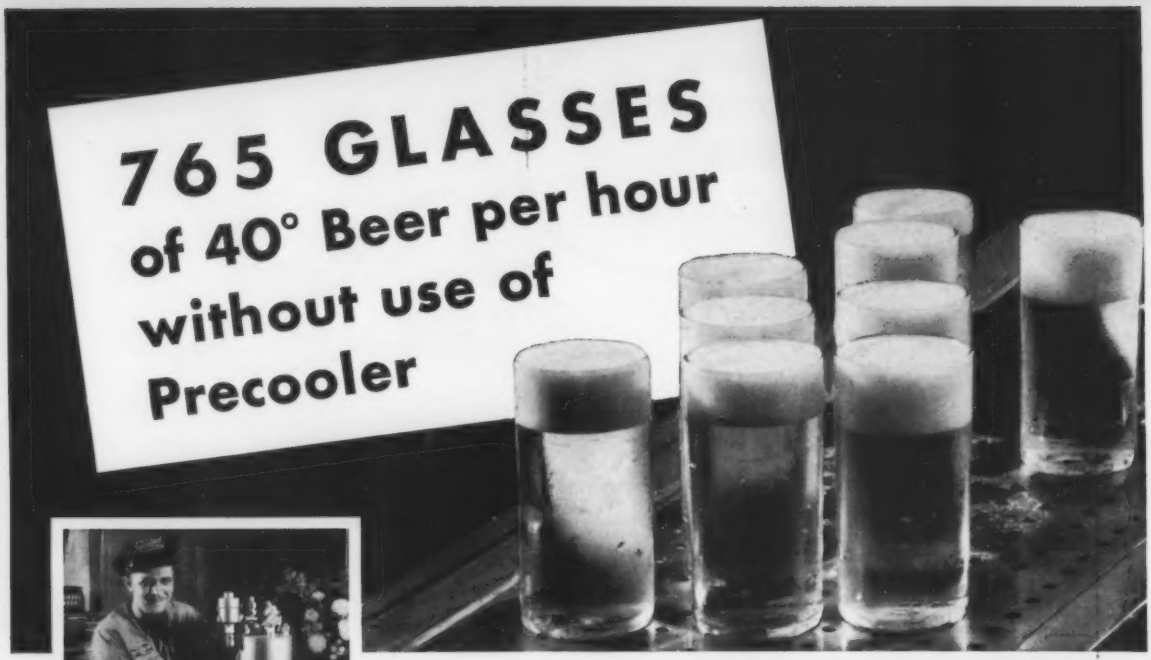
Because practically everyone knows there is no better guarantee of dependable, trouble-free operation than the Honeywell name on automatic controls for air conditioning and refrigeration.

So make *your* first choice Honeywell Controls – the first choice of architects, builders and consumers. For full information, address: Minneapolis-Honeywell, Dept. CR-6-68, Minneapolis 8, Minnesota. In Canada: Toronto 17, Ontario.

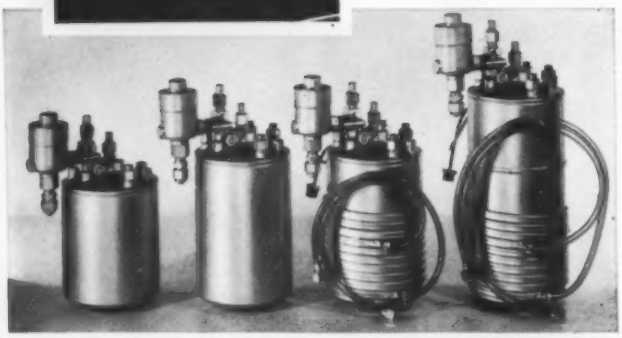
MINNEAPOLIS
Honeywell
First in Controls

Circle No. 30 on Reader Service Card for more information

765 GLASSES of 40° Beer per hour without use of Precooler



REFRIGERATION SERVICE ENGINEERS like the compact size and simplified construction of Temprite draught beer coolers. A Temprite unit can be sold with complete confidence and installed with the least amount of effort.



4 HEAVY-DUTY Temprite draught beer coolers shown above are designed for installation where precooler is not provided or where beer kegs are stored in a warm room or basement. They'll handle up to 3 brands of beer plus plain and carbonated water... from the same cooler at the same time. 4 medium capacity models (not illustrated) are available for lighter requirements or where a precooler is provided.

NEW HEAVY DUTY TEMPRITE BEER COOLERS draw perfectly cooled beer...instantaneously ...from 70° inlet temperature

The new heavy duty Temprite draught beer coolers are designed to do the entire cooling job strictly on their own. No precooler is necessary. Temprite's famous patented instantaneous cooling principle makes this possible. Beer coils are submerged in the liquid refrigerant itself and the heat of the beer is transferred directly into the main body of the refrigerant.

Any of the four heavy duty models will draw up to 765 glasses (48 gallons) of 40 degree beer hourly, *from a 70 degree inlet temperature.* Instantaneous cooling gives each unit a very high overload capacity which means that no matter how frequently the tap is opened during rush periods, *the beer is right for drinking pleasure.*

Smooth, stainless steel coils and Koroseal connector tubes help to deliver beer at its best. Every glass is cooled to perfection. Every glass has brilliancy, body, flavor, and a rich, creamy collar of the right depth.

Experienced refrigeration engineers are sticking with Temprite because Temprite dependability has been proven ... over the years ... in every kind of service.

If by chance you're unfamiliar with the Temprite story won't you drop us a line today?

"Be right with Temprite"

Temprite
PRODUCTS CORPORATION

P.O. BOX 72-B, EAST MAPLE RD.
BIRMINGHAM, MICH.

TEMPRITE PRODUCTS CORPORATION
P.O. BOX 72-B, EAST MAPLE RD.
BIRMINGHAM, MICHIGAN

RUSH me details on Temprite heavy-duty beer coolers.

NAME_____

COMPANY_____

STREET_____

CITY AND STATE_____

Circle No. 31 on Reader Service Card for more information

CONTRACTORS

NEWS · ACTIVITIES · PLANS

The Growth of the Industry Depends Upon Your Growth

By Theodore A. Reina

President, Refrigeration & Air Conditioning Contractors Association

WHAT is the definition of a refrigeration contractor? Any person who is not an employee but who operates a refrigeration business, whether as a corporation, partnership or individual, is a refrigeration contractor. He may have other employees, but not necessarily so.

I am here to sell you on the idea of taking a more active part in your industry by becoming a member of your local contractor organization, if there is one: If there is not, start one. In any event, join R.A.C.C.A. now, on an individual basis. You cannot hope ever to be successful by isolating yourself. You must expose yourself and rub elbows with your competitors, exchange ideas, support the industry and help it grow, and you will grow with it.

It is estimated that this industry of ours is the third largest in the country. It is one of the most vital and fastest growing industries in the country. Everything we eat and drink depends upon proper refrigeration; yet, our industry is one of the least recognized.

Right now we are a part of, or an auxiliary of, the steamfitters—the plumbers—the electricians. This must be changed. We must become recognized as an industry strong enough, and large enough, to stand on its own.

There are four cooperating groups at this conference—REMA, REWA, RSES and RACCA for the contractors. Each of us has a clearly defined duty to perform. We cannot expect the other segments of the industry to carry our burden. We must make ourselves felt to be effective, and to support our own program. However, all segments are, and should be, united in a common effort.

The trade publications have done a splendid job in publicizing and bringing forward many of our thoughts and ideas to the public and to government officials in Washington. In this case, too, we cannot leave it entirely up to them. We must supply them with the material they need to continue and expand this effort.

"I wore my shorts to services Sunday and the congregation voted unanimously to air condition the church."

I know that any time you approach a contractor and ask him to join an organization, his first question will be, "How can I benefit? What can the Association do for me?" I have the same answer for all of them: "What can you do for the organization?"

You must deposit money in a bank before you can draw checks against it. If you join an organization with your heart and soul, and you recognize the importance of it, and if you become active by attending all meetings, each time you will carry home with you enough new thoughts and ideas to more than compensate you for the time spent. On the other hand, if you do not take an active part, you will be one that will say: "The organization is not doing anything, and never will."

A simple and effective way of getting together locally would be to call one or two of your nearest competitors and ask them to have lunch with you. Try to make this purely on a social basis, and suggest that you have lunch together again the following week. If necessary, repeat this a few more times.

Friendship Comes First

After you feel that you have cemented a friendship, then I would suggest that you invite one or two more to this group, and repeat in the same manner. My suggestion would be not to attempt to form a local organization until such time that a real friendship has been developed. Remember that we are all human and that we can accomplish much more over a dinner-table than we can at a formal meeting.

Your national organization has a complete program for you, with many ideas on how to operate your local, but we cannot do it for you. You will have to execute the program.

There is another common objection to joining an organization, "lack of time". You have heard it said many times that, when you want a job well done, give it to a busy man. The fellow that claims he has no time for organization work is the same individual that never has time for anything. He doesn't even have time to make money, but is so busy with the little things that he doesn't have time for big things.

In spite of it all, we are extremely fortunate, for in this industry we do

Excerpts from a talk made at a special meeting during the recent REMA-RSES Educational Conference and Exhibit in Buffalo.

have some real leaders who devote their time and energies freely. If you cannot take an active part at first, fill out a membership application blank, join your local association and support it at least financially, so that we can carry on and keep this industry rolling and growing. If there is no local association, join the National Association on an individual basis.

You will get the benefits that have been developed by the National Association for each of its members. The benefits of membership will be increased to include:

1. Certain standard legal forms, such as standard maintenance contracts, commercial and domestic.
2. Standard invoice.
3. Standard guarantee.
4. Decalcomanias.
5. Cuts of the RACCA emblem.
6. Membership certificate.
7. Membership card.
8. Free subscriptions to trade journals.

This year we have extremely active and enthusiastic officers and directors from all over the country, and I am extremely confident that our accomplishments this year will be many.

We want you to become part of us. We want and need your ideas and suggestions. Please don't hesitate to write us at any time if you feel that we can help you.

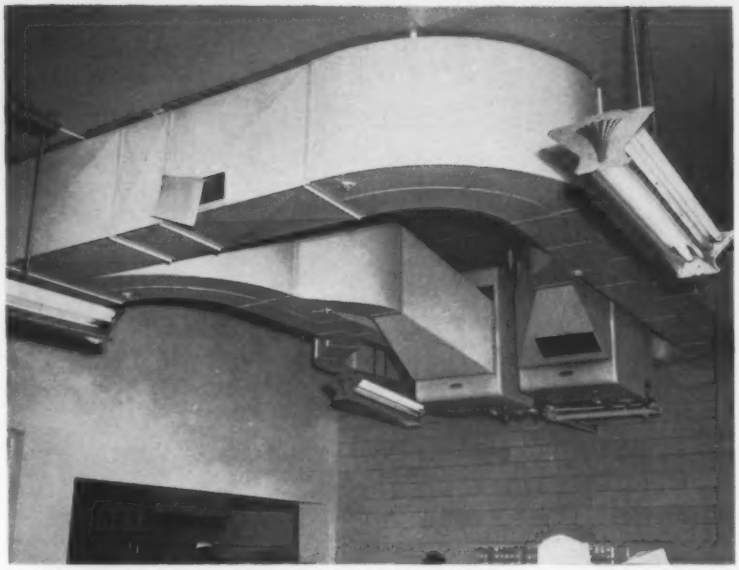
NPA CLARIFIES REPORTS REQUIRED UNDER MRO

Business firms, government agencies, or public or private institutions which were in operation in 1950 need *not* make reports of quarterly quotas to National Production Authority on materials used for maintenance, repair and operating supplies (MRO).

NPA made the explanation because some organizations, apparently misunderstanding Section 4 of Regulation 4, have gone to the unnecessary expense and bother of continuing to make reports. This is the regulation that permits the use of DO-97 ratings for procurement of MRO supplies.

Only new companies which were not in operation last year, or were only in partial operation, need make these MRO reports, NPA emphasized.

These Store Coolers Do a Central-Plant Job In Remodeled Illinois Super Market



FOUR 5-TON STORE CONDITIONERS operate as a central-plant system to air condition the remodeled Tri-City Grocery Co. super market in North Alton, Ill. Installed by Accurate Refrigeration Co., the four United States Air Conditioning Corp. units, located in pairs back-to-back, are operated by a mercury switch type multi-step controller to provide only as much summer cooling as is required. Four cool air ducts (shown above) from the units combine at the rear wall of the main store area into a single 36" x 24" duct (shown above) that runs down the center of the market, with cooled air being distributed through three 22" ceiling diffusers. Duct and diffusers were designed and sized for minimum air movement over the store's open-type frozen food display cases to guard against possible thawing of the top layers of products. By-pass dampers (shown in the photo above) switch two gas-fired duct-type unit heaters into the ducts from two of the conditioners to provide winter heating. Cooling water for the system is recirculated through a 60 gpm usAIRco atmospheric cooling tower on the roof above the equipment room.

Package Equipment for Movie Houses Is 'Personal Property'

Unit air conditioners, without ducts, water coolers, and soda fountains, used as motion picture theater equipment, have been reclassified as "personal property" by the National Production Authority.

These items formerly were designated as "real property" in a listing of equipment issued April 25 as a guide to determine the cost of alterations and construction of theaters.

Central-station type air conditioning equipment is considered real property. Self-contained drink dispensers, popcorn machines and warmers, and candy display cases are classed as personal property items.

In the amendment to M-4, issued May 3, construction regulations were broadened to permit installation of personal property, fixtures or equipment at a total installation cost of not exceeding $2000.

NPA has distributed to its field offices a list of motion picture theater equipment, with instructions as to whether it is to be regarded as "real" or "personal" property.

This is for use in connection with NPA Order M-4, the basic construction limitation order. Under the terms of Order M-4, the value of "personal property" need not be considered in determining construction costs, although the cost of installation must be considered. On all items classed as "real property", both equipment cost and cost of installation must be considered.

The construction limitation order in its present form provides that small jobs of new construction and alterations, additions, improvement and modernization are allowed without special authorization by an NPA field office if the work does not amount to more than $5000 for any consecutive 12-month period.

NPA Considers Tightening of Limitations on Construction

The National Production Authority has told the Construction Industry Advisory Committee it is considering the issuance of an amendment to the basic construction order adding to the categories of construction for which NPA authorization is required.

The action, NPA said, will promote further conservation of steel and other construction materials in the interests of the defense program and will coordinate the requirements of the construction industry with NPA's Controlled Materials Plan.

Among major provisions expected to be in the amendment, NPA said, are these:

1. It would require NPA authorization for construction of large apartment houses, luxury residences, and certain industrial facilities.

2. It would make allowance for certain "personal property" equipment installations up to a fixed amount.

3. It would change the definition of when construction is "commenced."

In the amended order, "commence construction" is expected to be defined to mean "substantial site clearance (including demolition of buildings or structures), preliminary to the start of or incident to the work on a new building, structure or project; or to incorporate into a building, structure or project substantial quantities of materials which are to be an integral and permanent part of such building, structure or project."

The significance of this change in definition would be considerable, NPA said, since "commence construction" was previously defined as meaning to incorporate into a building, structure or project a substantial quantity of materials which are to be an integral and permanent part of such building, structure or project (for example, the pouring or placing of footings or other foundations)."

CONTRACTORS

NEWS • ACTIVITIES • PLANS

SHORTAGE OF METHYL CHLORIDE EXPECTED

Members of the methyl chloride industry advisory committee and NPA officials agreed at a recent meeting that increased consumption of methyl chloride has resulted in a tight supply situation in the industry. Despite increased production, NPA estimated that the 1951 demand for the chemical would exceed expected supply by about 5,355,000 pounds.

Allocation may become necessary to conserve the chemical, NPA advised the committee, although no decision has yet been made. In case of allocation, NPA said an application by the producer to NPA for authorization to fill an order might be required.

DAIRY EQUIPMENT MEN ASK NPA ASSISTANCE

Members of the Dairy Equipment Industry Advisory Committee have asked NPA officials for aid in obtaining stainless steel to keep their plants in operation and maintain their skilled labor forces until they are able to begin defense production.

The industry said the nation faces a shortage of milk-processing equipment unless production is permitted to continue. It pointed out that the equipment the industry produces demands considerable time between acceptance of an order and completion of the item. Industry representatives said their inventories at present are large and unbalanced, so that many components will be useless unless matching parts can be obtained.

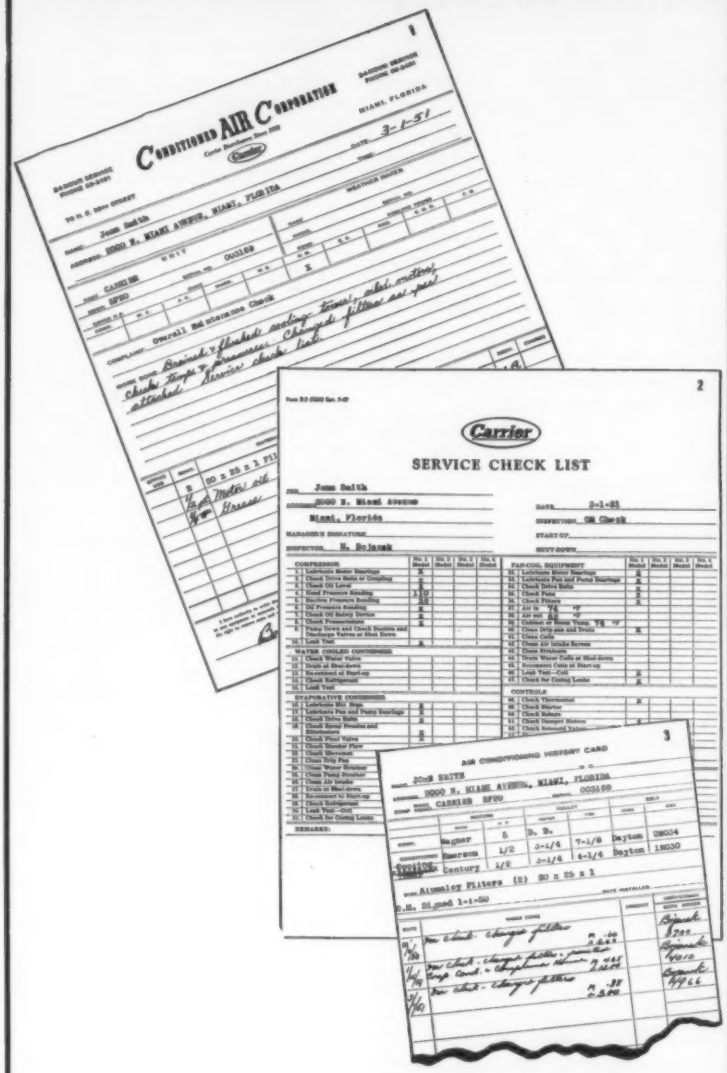
NPA said that under the Controlled Materials Plan the industry probably will be programmed for supplies to make bottling machines, freezers, pasteurizers and other essential dairy equipment. Industry men said they have been unable to obtain stainless steel without DO ratings.

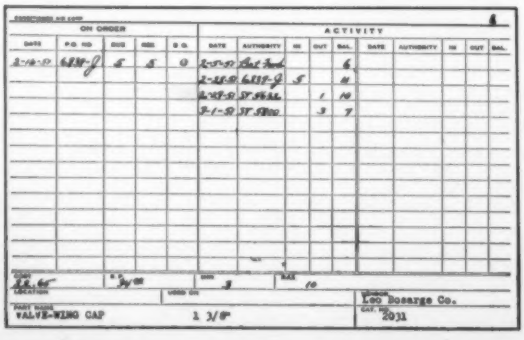
MIAMI GROUP HAS TWO NEW MEMBERS

Two new members have become affiliated with the Air Conditioning and Refrigeration Association of Miami, Fla., reports Howard S. Davis, executive secretary of the group.

The new members are: Stuart Cooling Corp. and A. C. V. Company.

These forms do the job...





1 Basic form is Service Call Record on which all calls are entered as they are received.

2 Service Order Form in triplicate gives office, customer, and serviceman full information.

3 History Card provides permanent and continuing record of all pertinent data on each job.

4 Stock Control Card Provides check on inventory and makes ordering of parts nearly automatic.

Want to raise you

Want

Overhaul Your

ONE of the things that makes a top-flight service business "tick" is a coordinated system of operation which sees to it that the right man is at the right place at the right time, and that he has an ample supply of the right materials to help him get the job done to the customer's satisfaction.

A behind-the-scenes operation of this sort, backing up the company's aggressive promotion of service contracts and planned direct-mail promotion program, has been responsible for doubling the service volume of Conditioned Air Corp., Miami, Fla., Carrier distributor, with a reduction of one-third in the service department's overhead.

Conditioned Air's service operation was put into effect by Chris W. Swain, service manager, and has been going since the 1949 season. All in all, it's a three-way program, including a maintenance agreement and a scheduled plan of sales promotion and direct mail for service business, besides the service department and stock room procedure which is the subject of this article.

The story here is not so much in

volume?

o cut your overhead?

Service Forms

the actual service and stock room forms, but in how they are used. For instance:

Basic service form is a *Service Call Record*, on which all service calls received are entered. This form provides space for the name of the name and address of the company making the call, the nature of the complaint, and the type of job that is involved.

Service calls are dispatched in the order of their importance, and the Call Record provides space for noting the time when the call was received, the time when it was dispatched, the name of the mechanic who is to handle the job, and any additional pertinent remarks that might help the mechanic locate and solve the service problems more quickly.

Next is the *Service Order Form*. Service order forms for contract service customers are filled out on typewriter in the office, and given to the service men who work in that particular territory. This covers the calls that are a part of the department's regular routine, since the Contract Service Agreement specifies a definite number of check-up inspections per year.

On calls received that are not on the contract service basis, the procedure works like this:

Each service mechanic carries a Service Order Form in his truck. When he receives a call from the dispatcher, he fills out this service order, noting name and address of the customer and any other details that might be helpful. The calls are dispatched one call per man—no mechanic is loaded with calls, and left to work them out in his own way.

Service men are instructed to call in every two hours, whether or not

Continued on page 99

MASSED IMPACT of installation photos on a display board like this turns many "lookers" into "buyers" for dealer Jerry Mertinke.

There's more than one way to

Make Your Job Photos Sell

BILLS for commercial photography run high in the annual budget of Jerry's Refrigeration Co., Wausau, Wis. But president Gerald Mertinke feels that this outlay is well repaid by the help which these photos give him in his job of selling commercial refrigeration equipment to the food store field.

"We believe in using pictures to prove our point," Mertinke emphasizes, "whenever any equipment question comes up." To enable him to do this, Mertinke has photographs taken of every installation he makes, and uses these to back up the other phases of his complete store engineering service.

"At the completion of each job," he explains, "we have our photographer go out and take pictures of the store *before* the groceries have been brought in. Then *after* the shelves and fixtures have been fully stocked another photograph is made from the same position.

"These paired pictures form an effective before-and-after presentation with which we can show a prospect all details of construction and installation work as well as the final effect."

Another important use to which Mertinke puts his many installation pictures is the preparation of a billboard-type photographic exhibit, proudly captioned "Store Layouts Installed by Jerry," which he displays prominently at every food show and similar function which he attends.

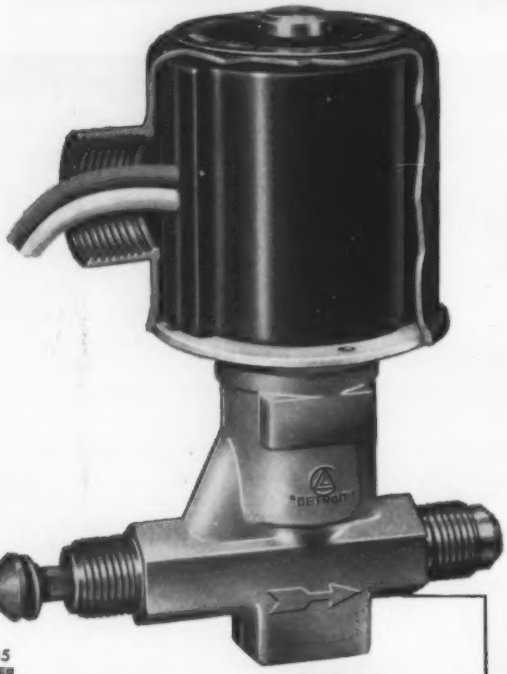
All of this picture taking costs money, Mertinke readily admits, but he firmly believes in the importance of these photographs in clinching equipment sales.

"Any time we begin to question the wisdom of our photographic expenditures," he declares, "all we have to do is run through our files of completed jobs. There we can point to sale after sale which definitely can be traced to the interest which our installation pictures have aroused in a potential customer. It doesn't take much of this to convince us more than ever that we couldn't spend our money in a better way."

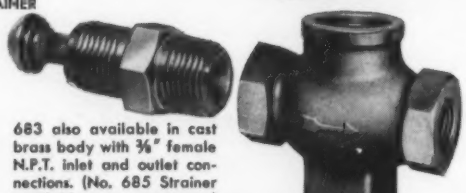
DETROIT'S PLAN GETS YOU

Building New Service Business from the

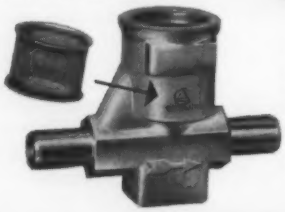
Refrigeration servicemen everywhere praise DETROIT'S big business building program. With ever increasing impact, DETROIT'S powerful plan sells more and more users of commercial refrigeration equipment the vital need for periodic service checkups. Hard hitting, full page DETROIT advertisements, appearing each month in magazines reaching your customers, are working for *you*, building new service business and new service profits!



No. 685 STRAINER



683 also available in cast brass body with ⅜" female N.P.T. inlet and outlet connections. (No. 685 Strainer available as an accessory.)



683 in forged brass body available with either flare (⅜" S.A.E. for ⅜" x ¼" Reducing Nut) or sweat (⅜" or ½" O.D. connections.

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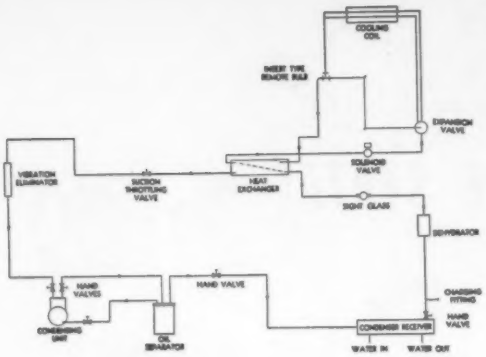
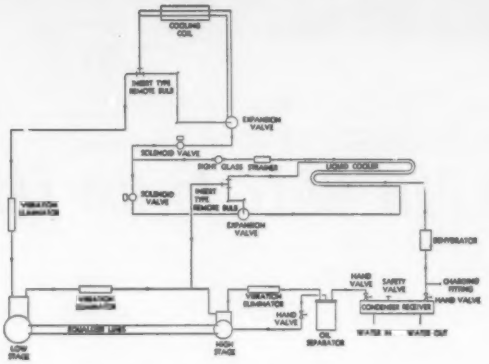


1—SINGLE STAGE SYSTEM



2—TWO STAGE COMPOUND SYSTEM

LOW TEMPERATURE IN INDUSTRY

2. How it is obtained

By Thomas J. Loppiccolo
Vice President
Bowser Technical Refrigeration

SINCE the onset of World War 2, low temperature has come out of the laboratory and is now being put into everyday use. Those few multistage refrigeration systems which previously were looked upon as 'marvels' and 'oddities' in the industry have now become commercial everyday systems which we deal with in many different and varied applications.

During the war, temperature requirements were found to be considerably lower than -40F and, towards the end of the war, temperature requirements of -100F were not uncommon.

Ordinary single stage refrigeration systems which had previously been made to operate satisfactorily to temperatures of -10 or even -20F were pushed a little further to produce temperatures of -40F.

This was believed to be the maximum for single stage refrigeration due to the abnormal operating conditions of head pressure and suction pressure. The resulting high compression ratios on ordinary commercial machines were found to be such as to present uneconomical operation to temperatures of -40 or even -50F.

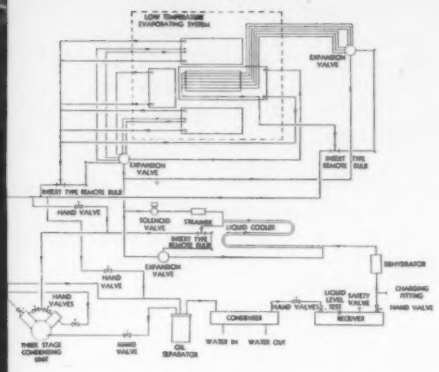
During this period of time, a demand was placed upon the industry to produce, by means of mechanical refrigeration, systems including compressors and condensing units to produce low temperature refrigerating effect without the use of expendable materials such as liquid air or dry ice which had previously been used for this purpose.

There had been, prior to this time, many multistage systems placed into operation, but these were single installations, which were individually engineered, costing considerable sums of money in research and trial and error. In order to meet the demands of wartime industry, however, it was necessary to produce multistage systems which could be easily reproduced and whose performances could be predicted, calculated and guaranteed.

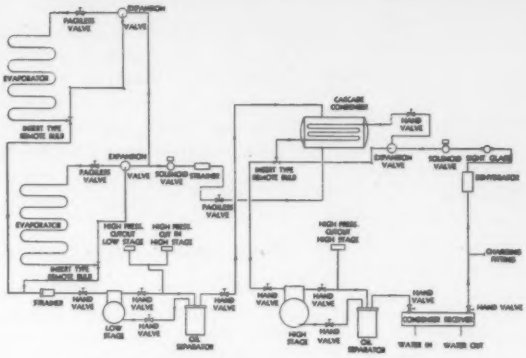
It was not only a problem to design compressors for this low temperature application, but it was also necessary to obtain new refrigerants, new lubricating oils, new expansion valves, and new manufacturing techniques in order to produce a satisfactory system.

Out of this research and study came what is now known as multistage refrigeration of two distinct types. One is two stage and three stage compound refrigeration and the second is known as cascading.

In compound compression the same refrigerant is handled throughout all pressure stages from the evaporator through the first and second stages of compression and then



3—THREE STAGE COMPOUND SYSTEM



4—TWO STAGE CASCADE SYSTEM

through the condenser. In this manner, the same refrigerant passes through the expansion valve and is completely recirculated throughout the complete cycle.

In the cascade system we have a series of individual single stage systems wherein the first stage is condensed by the evaporator of the second stage and the second stage discharge is condensed with the cooling water. This system, as well as the compound compression system, is infinite in the number of stages of compression, but the limitations resolve themselves to high initial cost, limitations of available refrigerants, and economics of investment.

–50 F with Single Stage

Due to improved techniques in the manufacture of compressors, wherein closer clearances were possible, and improved designs of suction and discharge valves as well as the selection of better materials, the condensing units themselves now provide greater volumetric efficiency. Also, they require less horsepower per ton, which is a function of friction within the machine.

As a result of this improved design in manufacture, single stage refrigeration has been economically used producing temperatures as low as –50 F. According to normal and standard design, this represents a refrigerant temperature of approximately –60 F. This is economically possible only by the use of water-cooled condensers and Freon-22 as the refrigerating medium.

A typical example of a single stage system as applied to low temperature is shown in Figure 1.

It is interesting to note the installation of an oil separator in the discharge of the compressor between the compressor and the condenser. This is vital to low temperature installations because it is desirable to minimize the amount of oil circulated through the evaporator.

It is known and it is proven that oil in evaporators separates during the off-cycle of the refrigerant, the refrigerant boiling off into a vapor. The oil remains on the inner surfaces of the evaporator and, since it is subjected to extremely low temperatures, it materially effects the overall coefficient of heat transfer.

Also, any oil transferred from the compressors to the evaporator means a shortage of oil in the crankcase of the machine and this would eventually mean failure due to the lack of lubrication. Oil separators, even though they are not 100% efficient, still remove a considerable quantity of oil from the refrigerant, and any oil that is removed by the separator means just that much less accumulated in the evaporator.

Another interesting point to be noted is the use of an insert type remote bulb for the expansion valve. It is simple to see that when low temperatures are being produced, the pressure-temperature relationship of the refrigerant is also duplicated in the charge of the power assembly of the expansion valve.

Responsive Bulb Needed

In other words, at lower temperatures a small change in pressure results in a large change in temperature and conversely it requires a large change in temperature of the remote bulb to effect enough pressure change in the power assembly of the expansion valve to open and close according to superheat settings.

As a result, it is necessary that the bulb be responsive as possible to the changing temperatures of the gas in the suction. It has been found that there is too much lag in thermal conductivity if the bulb is clamped to the suction line, whereas it is considerably more responsive if it is inserted within the refrigerant stream.

It has also been found necessary to use specially charged power assemblies for extremely low temperature work. It is desirable to use a gas charged power assembly which is charged with a gas whose pressure-temperature characteristics are higher for the given temperature than the refrigerant being used in the system.

It is not uncommon to find that Freon-12 expansion valves are charged with Freon-22 in the power

assembly, and that expansion valves to be used on Freon-22 are charged with propane in the power assembly. Today, expansion valves are being developed for use with ethane and some of the newer Freon refrigerants, with cross charging on the power assembly still being necessary.

One of the important considerations when discussing either single or two stage systems is that the evaporator should be free-draining at all times. This will be discussed more thoroughly later on, but it is pointed out here in order to impress upon the refrigeration engineer the necessity of keeping oil out of the system.

What are the advantages and disadvantages of using single stage refrigeration for low temperature?

Certainly among the advantages is its simplicity of design, installation, maintenance and service. Any refrigeration service engineer certainly would not have any fears about servicing a low temperature unit if he found that it was a single stage system, since single stage systems are something he encounters every day.

There is little difference between a walk-in room which is refrigerated to 38 F with a single stage compressor and a walk-in room refrigerated to –40 F by means of a single stage refrigeration machine. The approaches to the problems are identical; the solutions to the service and maintenance problems are the same; the only difference is in the temperature operating level of the room itself.

Replacement Parts Available

Another advantage of single stage refrigeration for low temperatures, even though such systems are limited to –50 F, is that commercial machines can be used and replacement parts are generally available throughout the country, with certain exceptions such as special lubricating oils for the compressor.

Lastly, one of the greatest advantages is that ordinary, commercially available refrigerants are used which are certainly found everywhere. Freon-12 and Freon-22 are becoming more and more readily available to every local service man.

Among the disadvantages to the use of single stage refrigeration is the low overall efficiency. That is, it requires a large compressor with large horsepower to produce small tonnage refrigerating effects at low temperatures and low back pressures. High compression ratios cut down the volumetric efficiency considerably and it is interesting to note how this affects the selection of condensing units.

The following information is approximate and is used for reference only. A 10 ton condensing unit—that is, 10 tons capacity at 40 F refrigerant—delivers approximately 1 ton at –40 F. In other words, there is involved a terrific investment in condensing unit and motor equipment for producing rather small tonnages at these low temperatures.

Although it has been previously stated that one of the advantages of single stage systems is the use of commercially available refrigerants, such

Defense Industry Uses Many Cooling Products

VIRTUALLY every type of air conditioning and refrigeration equipment made by Carrier Corp. has been classified as essential to some aspect of the defense program and purchased under defense order ratings during the six months since the rating system went into effect, according to Carrier officials.

The mounting list of defense rated contracts ranges from room air conditioners for service hospitals and experimental applications, to huge centrifugal refrigeration machines and gas compressors for defense industry and service installations.

Laboratories and research establishments have called for a wide variety of air conditioning equipment to maintain temperature and humidity control over experiments, and of refrigeration units for special purposes.

Packaged air conditioning units of the type used for many years in stores and suites of offices, and packaged laboratory units which maintain even more precise control of temperature and humidity levels are being shipped for wind tunnel and ordnance test rooms and animal laboratories.

In one case, a wind tunnel at an Air Force base has obtained a self-contained air conditioner to cool the room where the testing section of the tunnel is located, since the friction of air passing at high velocities through the section generates heat.

Wind tunnel, engine testing, and other research installations have also placed orders or requested quotations for centrifugal and reciprocating refrigeration equipment, cooling coils, cold diffusers, and central station air conditioning apparatus.

Low temperature research and processing will require substantial quantities of special refrigeration apparatus. A centrifugal refrigeration installation completed some time ago for the Wright-Patterson Field All Weather Laboratory's environmental testing facility is chilling brine for cold weather testing to temperatures as low as minus 125 F. A pharmaceutical company is obtaining equipment for processing in the ultra-low temperature field, under a "DO" order, and other orders of the same type are now being negotiated.

Air conditioning of defense factories in order to produce war supplies faster, cheaper, and better is developing swiftly. One defense rated contract has been received for air conditioning a textile plant, and another large new plant in the South also will be completely air conditioned on a "DO" basis.

Army, Navy, and Air Force facilities are taking many items of air conditioning and refrigeration equipment. The list includes packaged year round air conditioning units, designed originally for residences, to be used for hospital installations at a large army base. Self-contained units have been purchased for airport control towers, and for parachute drying and storage at an Air Force base in the south. A number of air conditioners and matching cooling towers have been ordered by the Army for shipment overseas. The Navy is obtaining a special absorption refrigeration machine for installation in one of its ships.

systems have the disadvantage of being limited to just those two refrigerants.

Such refrigerants as Freon-13, Freon-14, ethane, propane, nitrous oxide, etc., have extremely high condensing pressures at ordinary water temperatures and, as a result, cannot be used in ordinary commercial machinery. They must be used in the cascade systems which will be discussed later.

Figures 2 and 3 illustrate two and three stage refrigeration as applied to low temperatures between –50 and –100 F. Figure 2 shows the refrigeration circuit for a two stage system using two compressors, while the Figure 3 shows a system embodying three stages of compression within a single compressor.

Compression System Differs

The principles of design are the same. The difference rests within the condensing units themselves, since one manufacturer still continues to apply single stage machines to multi-stage combinations while another manufacturer offers self-contained two and three stage compressors.

Fundamentally, the two stage system is the same as the single stage circuit. The difference lies within the compression system itself as well as a means of subcooling the refrigerant prior to entering the expansion valve. This is shown by the intercooler and liquid cooler combination separately fed by another expansion valve with the suction in the interstage between the two stages of compression.

The purpose of this liquid intercooler and liquid subcooler is twofold.

Subcooler Serves Two Ways

In the first place it provides a means of extracting some of the sensible heat from the liquid refrigerant prior to its entering the expansion valve and the evaporator. Any heat removed from the liquid at this point results in increased efficiency in the evaporator, since less of the refrigerant is lost as far as Btu removal capacity is concerned in flashing in the evaporator. Any flash gas is lost refrigerating effect.

The second function of the liquid subcooler is to provide a cold source of gas at the interstage between the two stages of compression to reduce

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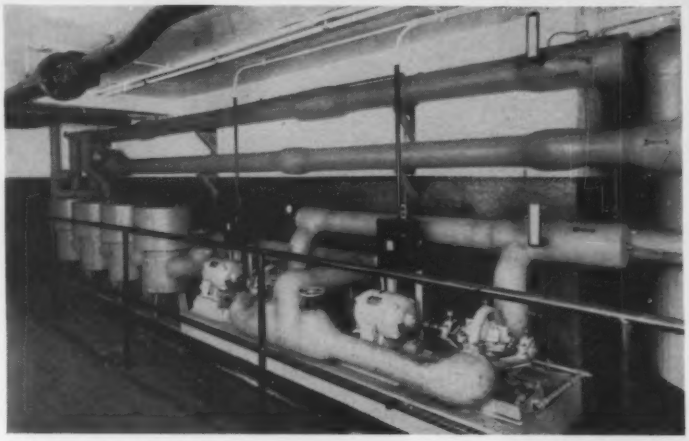


THREE COLD WATER LINES at the William Penn Hotel were thoroughly insulated and carefully vaporproofed to insure maintenance-free service in a basement area where surrounding air temperature and humidity are high.

Vapor-Proof for Top Efficiency

REFRIGERATING engineers and insulation contractors consider vapor-proofing, or the protection of insulation from destructive moisture condensation, an important consideration in the effective insulation of piping containing low-temperature fluids.

Condensation of moisture may occur on the surface of all types of pipe insulation when the temperature of the surrounding air exceeds the outside insulation surface temperature and relative humidity is high. To prevent accumulation of moisture in the insulation and consequent reduction of its efficiency, a vapor (moisture) barrier is installed over the pipe insulation and beneath the finish.

All three of the horizontal 4-in. pipe lines are covered with 1½-in.-thick molded-type mineral wool sectional pipe insulation. Pipe fittings are covered with 1-in.-thick mineral wool felt insulation and plus a 1-in. layer of insulating cement.

The lower insulated pipe supplies circulating ice water from the refrigerating units and pumps throughout the hotel; the pipe thermometer on the right reads about 46 F. (arrow indicates direction of flow).

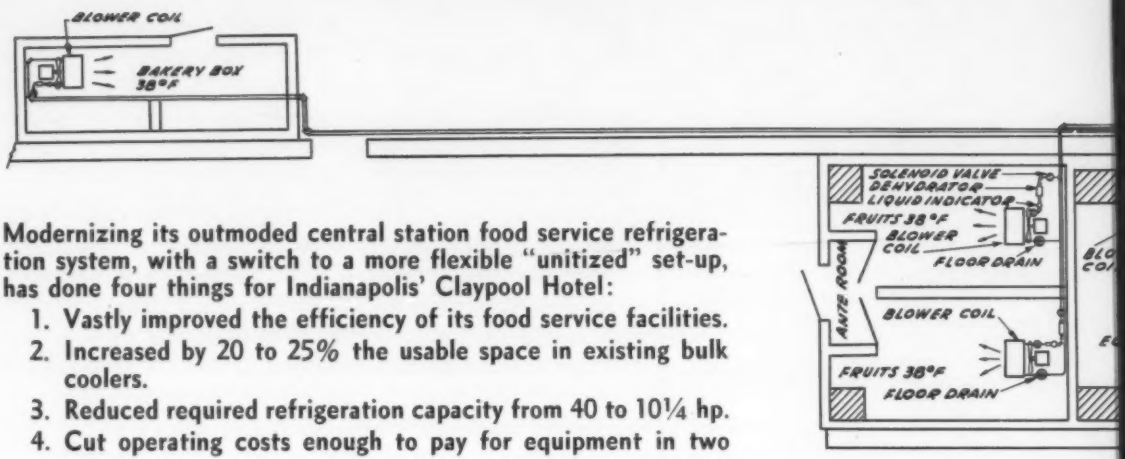
The long insulated pipe section in the middle supplies city water to the refrigerating system.

The top length of piping is a section of the ice water return system and feeds circulated ice water to the refrigerating units for recooling. A typical reading on this thermometer is 49 F.

For each run of pipe between fittings, the inside surface of the molded-type sectional pipe insulation was heavily coated with asphalt emulsion and the sections pressed on the pipe. Adjoining sections were tightly butted together and secured with jute twine spirally wound over the insulation on 4-in. centers.

As a vapor barrier, wax-impregnated paper was then wrapped around the insulation, edges lapped 3-in., and sealed with asphalt emulsion. A hard base for the finish was provided by a layer of rosin-sized paper wrapped and sealed over the wax-impregnated wrapper. Eight-ounce canvas was pasted over the rosin-sized paper and two coats of oil paint applied to finish the installation.

Felt-type insulation was tightly wrapped over the pipe fittings, bound with jute twine and covered with two ½-in. layers of mineral wool insulating cement, both layers being allowed to dry thoroughly. A thick vapor-proofing coat of asphalt emulsion was then trowelled on over the cement. After drying, the fittings were finished with 8-oz. canvas and two coats of oil paint.



Modernizing its outmoded central station food service refrigeration system, with a switch to a more flexible "unitized" set-up, has done four things for Indianapolis' Claypool Hotel:

1. **Vastly improved the efficiency of its food service facilities.**
2. **Increased by 20 to 25% the usable space in existing bulk coolers.**
3. **Reduced required refrigeration capacity from 40 to 10¼ hp.**
4. **Cut operating costs enough to pay for equipment in two years.**

LOOK TO HOTELS FOR

NO COMMERCIAL REFRIGERATION DEALER ever made a fortune out of installing food storage and service facilities in new hotels. There just aren't enough new hotels put up every year.

But there is a big and profitable *replacement* market in the hotel and institutional field just waiting for the dealer who is on his toes enough to exploit it.

Many such institutions still are getting by with outmoded refrigeration systems installed as long as 30 or 40 years ago. Invariably such systems are inefficient to use and costly to operate. They are still in service only because they somehow have been kept going and because no refrigeration man ever sold the management on the advantages which could be obtained through replacing these systems with thoroughly modern equipment.

The Claypool Hotel in Indianapolis, Ind., was a perfect example of this situation.

As any hotel must, the Claypool maintains quite a variety of refrigerated bulk storage facilities for all types of food products. At the Claypool this includes a bakery box, two walk-ins for fruit storage, a chef box, and separate coolers for eggs, meat, milk, fish, and vegetables. Temperatures in these coolers range from 28 to 38 F.

The Claypool's old central station brine refrigeration system was over-powered by a 40-hp ammonia compressor which was originally installed with the idea of providing ample capacity for any future additions the hotel might make to its cooling facilities. But because this unit provided more refrigeration capacity than the hotel ever actually used it was uneconomical to operate because of its high ratio of refrigeration horsepower to Btu output.

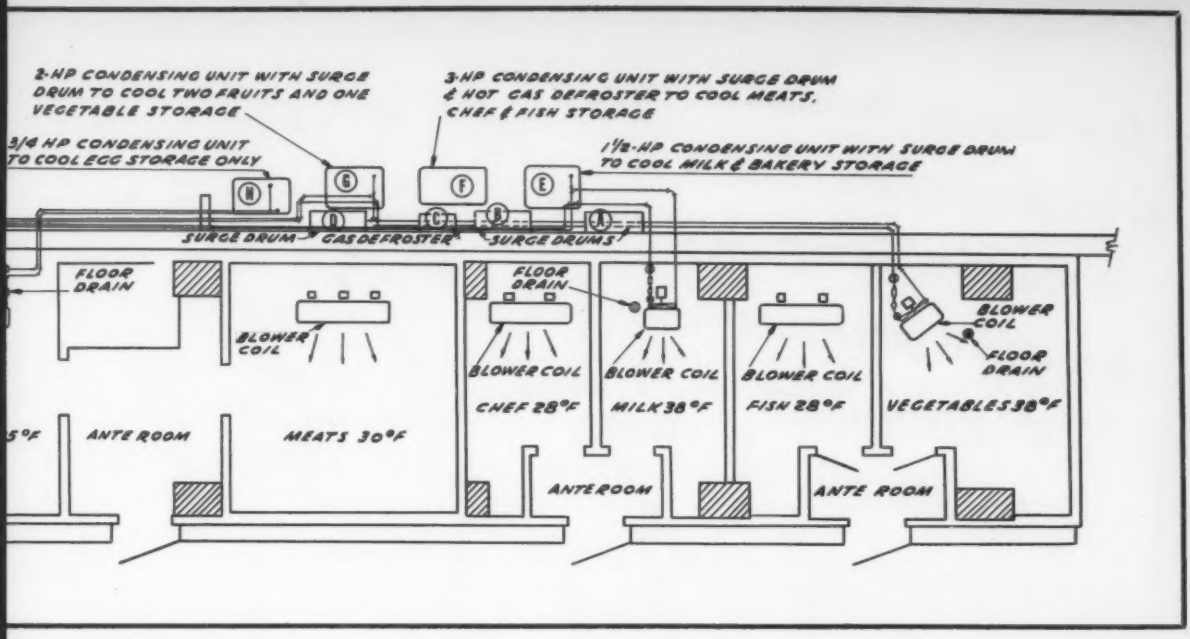
Furthermore the old gravity coils, complete with baffles, which were located in the walk-in coolers were extremely bulky and took up valuable space which could have been used to much better advantage for actual food storage.

In addition to cooling the walk-ins shown in the accompanying plan drawing, this 40-hp compressor also circulated chilled brine to two kitchen storage compartments, one a walk-in and one a reach-in, and to a bottled beer cooler in the hotel's tavern.

When the decision was made to modernize the hotel's refrigeration set-up, the first step was to pull out the old central station brine system. Then, to cool the series of walk-ins in the basement, a bank of four direct expansion condensing units ranging in size from ¾ to 3-hp was installed. This added up to a total of 7¼-hp of refrigeration capacity for the coolers shown in the accompanying layout.

The bottled beer cooler in the tavern and the two kitchen storage compartments were hooked up to separate units of their own, totaling 3 hp. The two kitchen coolers are maintained at a temperature of 38-40 F. The reach-in is served by a ½-hp unit; the 8 x 12-foot walk-in by a 1-hp compressor.

Thus a total of only 10¼-hp of refrigeration equipment now is doing the same job previously performed by a


2-HP CONDENSING UNIT WITH SURGE DRUM TO COOL TWO FRUITS AND ONE VEGETABLE STORAGE
3/4 HP CONDENSING UNIT TO COOL EGG STORAGE ONLY
3-HP CONDENSING UNIT WITH SURGE DRUM & HOT GAS DEFROSTER TO COOL MEATS, CHEF & FISH STORAGE
1½-HP CONDENSING UNIT WITH SURGE DRUM TO COOL MILK & BAKERY STORAGE
SURGE DRUM
GAS DEFROSTER
SURGE DRUMS
FLOOR DRAIN
BLOWER COIL
ANTE ROOM
MEATS 30°F
CHEF 28°F
MILK 38°F
FISH 28°F
VEGETABLES 38°F

REPLACEMENT SALES

40-hp system. Naturally this makes for much more efficient and economical operation, as it is not necessary to maintain a large and unneeded reserve capacity. Yet any time the hotel might desire to expand its food preservation facilities it can readily do so simply by adding another individual refrigeration unit of just sufficient size to handle the added facilities.

Also, an increase of 20 to 25% in usable space in the existing coolers was made possible by substituting modern blower type coils for the old gravity coils with wooden deck baffle drain pans which occupied so much valuable storage space.

The meat, chef, and fish coolers, all operated at below-freezing temperatures, were equipped with an automatic hot gas defrosting system.

A decided advantage of the revamped installation is better overall control of the hotel's food service operations. Formerly, when the old central station system was being used, if anything went wrong with the compressor it meant that the refrigeration had to be shut off in all of the coolers. This threat of complete service interruption, and consequent food spoilage, no longer exists now that the system has been "unitized".

Here is a brief description of how the automatic controls on the new system function.

Where one condensing unit serves a single cooler load, each room has a thermostat which automatically operates

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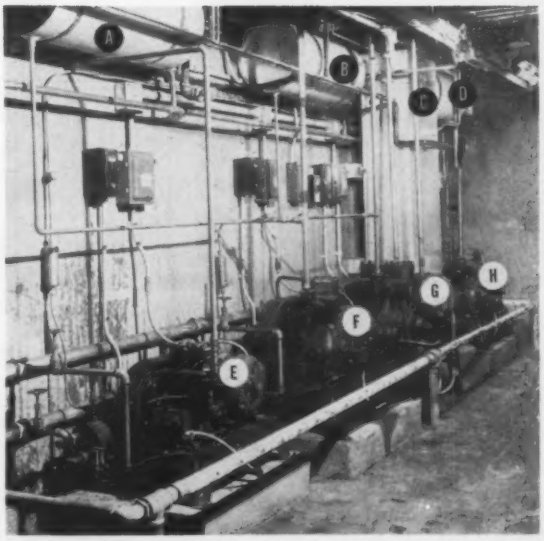
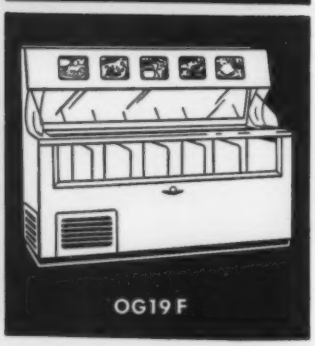


MAIN BANK OF COMPRESSORS in the Claypool Hotel's revamped refrigeration system shows the relationship of condensing units, surge drums, and the hot gas defroster. Each unit bears a letter designation so that it may be more readily identified on the plan drawing of the system.

(A), (B) and (D)—Surge drums.
(C)—Hot gas defrosting unit.
(E), (F), G) and (H)—Condensing units.



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NEWS OF THE INDUSTRY

LYNCH ELECTS NEW PRESIDENT

M. H. Pendergast has resigned as president and director of Lynch Corp., and F. K. Zimmerman, formerly secretary-treasurer, has been elected to succeed him as president, it has been announced.

Zimmerman formerly was connected with Par refrigeration and air compressor manufacturing for Lynch at Defiance, Ohio, before being named secretary-treasurer.

Pendergast joined Lynch in 1938 when the company purchased Modern Equipment Corp., Defiance, of which he was vice president and general manager. He was elected to the Lynch board of directors in 1941, and was executive vice president and general manager until becoming president in 1949.

Lynch operates five plants in Toledo and Defiance, Ohio, and Marion and Anderson, Ind., manufacturing packaging machinery, glass forming machines, automotive air compressors and refrigeration equipment.

11 MORE FIRMS SIGN FOR SHOW

Eleven additional manufacturers have contracted for exhibit space at the 7th All-Industry Refrigeration and Air Conditioning Exposition, scheduled for Navy Pier from Nov. 5 to 8, according to word from REMA Show headquarters.

The new exhibitors are: Jewett Refrigerator Co., Inc.; Koch Refrigerators; Wagner Tool & Supply Co.; International Register Co.; Rochester Products Div.; G. M. C.; Russell Electric Co.; Russell R. Gannon Co., Inc.; Emerson Electric Mfg. Co.; August G. Barkow Mfg. Co.; Madden Brass Products Co.; and Mine Safety Appliances Co.

REMA LEADERS FOR 1951-52 YEAR

OFFICERS AND DIRECTORS of Refrigeration Equipment Manufacturers are shown here in a recess during their annual meeting at Hot Springs, Va. In the front row, left to right, are: W. A. Siegfried, Superior Valve & Fittings Co., president; R. L. Sears, Lynch Corp., vice president; J. L. Dube, Alco Valve Co., treasurer; and L. C. McKesson, Ansul Chemical Co., secretary. Second row: H. F. Spoehrer, Sporlan Valve Co.; H. F. Hildreth, Westinghouse Electric Corp.; R. H. Israel, Virginia Smelting Co.; E. M. Flannery, Bush Mfg. Co. Rear: Paul L. Craft, Mueller Brass Co.; Lud Emde, Temprite Products Corp.; H. Blake Thomas, McQuay, Inc.; Harry Fouts, REMA statistical dept.; K. B. Thorndike, Detroit Lubricator Co.; F. H. Faust, General Electric Co.; W. Vernon Brumbaugh, REMA executive secretary; W. J. Stelpflug, Hussmann Refrigerator Co.; J. W. Krall, Tyler Fixture Corp.

H & M TO DOUBLE SIZE OF FACTORY

Byron Halstead, general manager of Halstead & Mitchell, Zelienople, Pa., has announced that his company would soon break ground for a quarter of a million dollar addition to their factory. The building, which will be a huge wing attached to the present factory structure, will more than double present floor area and provide space for the rapidly expanding operations.

Included in the expansion will be considerable new manufacturing equipment. The addition will be built immediately to the right (east side) of the present buildings, and will add some 38,000 sq. ft. of floor space under roof.

Initial building of the company was erected in Zelienople in 1947, and was 100 x 100 feet; less than a year ago it completed the first addition to the factory, adding another 100 feet to the main building and attaching a large bay on the west side.

Following this addition, a draw bench for the reduction of pipe was installed. The only such equipment in the area, it makes it possible for the company to center its purchases of tubing to one or two sizes which can then be reduced to any dimension needed in the H & M operations.

The company manufacturers condensers and other major parts for commercial refrigeration units. In addition, H & M does all manufacturing work for Remco, Inc., another Zelienople company.

USE DO-97s RIGHT, NPA CAUTIONS

DO-97 ratings—used in purchasing certain materials needed for maintenance, repair and operating supply items (MRO)—must not be used to build up inventory stocks, the National Production Authority has warned.

NPA said that some wholesalers, anticipating DO-97 rated orders from their customers, are building up stocks in advance to meet this expected demand by extending DO-97 ratings prematurely to their own suppliers.

This is a violation of Regulation 4, NPA pointed out. The wholesaler must not use the DO-97 rating to get replacement items until he has received a DO-97 order from his customer. When he gets such a rated order, it then becomes permissible for him to use DO-97 to replace the item sold.

The DO-97 rating was established as a means of protecting civilian production and economy as far as possible by keeping civilian facilities in operating order, NPA pointed out. The rating may be used by any business firm, government agency or private or public institution as provided in Regulation 4.

MITCHELL SETS UP RESEARCH STUDIES

Establishment of the Mitchell Air-Conditioning Research Foundation has been announced by B. A. Mitchell, president of Mitchell Mfg. Co., Chicago.

Purpose of the Foundation, a non-profit organization, is to study the effects of room air conditioning on the human body. Initial experiments will be carried out at Michael Reese Hospital in Chicago and will concentrate on the effects of an air conditioned atmosphere on healthy and failing human hearts.

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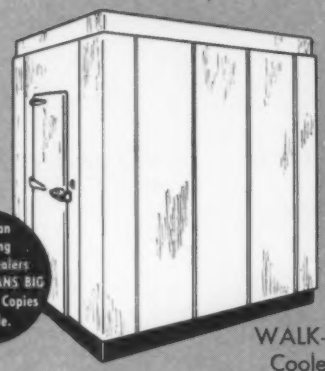

There's an interesting story for dealers in "Bally MEANS BIG BUSINESS". Copies available.

WALK-IN Cooler

...ONE OF 62 DIFFERENT BALLY MODELS and SIZES

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Bally Case and Cooler Co., Bally, Pa.

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Now you can figure complete jobs with Hirsh Pre-Bilt Shelving Equipment! The Hirsh Plan enables you to sell wall and gondola units that the merchant can assemble himself.

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CMP PROGRAM TO START IN JULY

The National Production Authority has issued a list of more than 4,000 manufactured articles containing steel, copper or aluminum which, under NPA's Controlled Materials Plan, are designated as Class "B" products.

The "B" products, under CMP, are those where it is considered most practicable to furnish authorizations for materials horizontally, directly to the producers. The "A" products, generally speaking, get their authorizations of materials from their customers.

NPA has mailed copies of application form CMP 4-B to more than 50,000 manufacturers for use in applying for allotments of the controlled materials needed for production of goods during the third quarter of 1951. The CMP program officially goes into effect on July 1, but manufacturers operating under the program are required to return their CMP-4B forms before May 31 to the NPA industry division or other agency indicated in the "B" list.

The "Official CMP Class B Product List" shows "B" products under category headings, and indicates the particular NPA industry division to which manufacturers of each should apply for authorized production schedules, allotments of controlled materials (steel, copper and aluminum), and defense (DO) ratings.

However, certain items on the "B" list are marked with asterisks, and the manufacturers of these items will not be granted controlled materials allotments at present. These firms are instructed not to apply, except for all parts to be used for repair purposes.

Examples of this, in the refrigeration field, are household mechanical refrigerators, home and farm freezers, and soda fountain and beer dispensing equipment.

Unitary commercial refrigeration equipment, compressors and compressor units, condensing units for refrigeration and air conditioning, and general categories of refrigeration and air conditioning equipment are scheduled to report their requirements to the General Industrial Equipment Division of NPA.

Automatic regulating valves have as their "claimant agency" the Scientific and Technical Equipment Division; valves and fittings for piping systems, except plumbing, report to the General Components Division. Manufacturers of industrial fans and blowers will file their schedules with the General Industrial Equipment Division, also, as will manufacturers of batch type and continuous ice cream freezers. Electric motors, both fractional and integral horsepower, are to receive their allotments from the Electric Equipment Division.

DEFENSE ORDER BULLETIN ISSUED

The Defense Production Administration has begun issuance of a weekly bulletin, "Defense Production Record", to summarize week-by-week developments in defense production. It contains a compact roundup of official actions taken by DPA and other defense agencies.

The bulletin summarizes orders, regulations, recommendations of industry advisory committees and other activities of government defense production agencies, including a brief outline of the action, giving the name of the issuing agency, and telling where the official text may be obtained.

Business firms and organizations may obtain the bulletin for $2.50 a year from the Superintendent of Documents, Government Printing Office, Washington, D. C. Foreign subscription price is $4 per year.

DAWSON FIRM WILL REPRESENT BINKS

The Richard S. Dawson Co., 228 Glendale Blvd., Los Angeles, has been appointed California representative for the Cooling Equipment Division of Binks Mfg. Co., Chicago. The Dawson company will handle the full line of natural and mechanical draft cooling towers, heat exchange coils, and industrial spray nozzles.

38TH ASRE MEETING HELD IN DETROIT

The latest refrigeration techniques and the situation regarding shortages of critical materials so necessary in the manufacture of refrigeration equipment received topmost attention at the 38th spring meeting of the American Society of Refrigerating Engineers, held May 27 through 30 in the Hotel Statler, Detroit.

Formal technical sessions were held on the mornings of May 28, 29 and 30, when authorities in their respective fields presented papers on a variety of subjects.

D. D. Wile of Refrigeration Engineering, Inc., spoke on design of small air conditioning systems, and W. T. Smith of U. S. Air Force presented a paper on humidity control. In the field of industrial refrigeration, equipment design for use below —20 F was described by E. R. Michel of Worthington Pump & Machinery Corp.; a paper on refrigeration in greenhouses was presented by A. J. Hess of Hess, Greiner & Polland; and C. W. DuBois of Minute Maid Corp. discussed the effect of storage temperatures on the stability of citrus concentrates.

Leon Buehler, Jr. of Creamery Package Mfg. Co. reported on new design and service life of multi-cylinder ammonia compressors; a paper on solubility of air in Freon was given by H. M. Parmalee of Kinetic Chemicals; and Edward Simons discussed the physical and chemical characteristics of shredded redwood bark fiber insulation.

The domestic refrigerator engineering conference, a popular feature of recent ASRE meetings, stressed the application of electric motors to hermetic compressors. H. H. Bixler of General Electric presented the lead-off paper; Milton Kalischer of Westinghouse was chairman of the conference.

Leon Buehler, Jr. was chairman of the program committee, and other arrangements for the meeting were in the hands of ASRE's Detroit section under the direction of chairman Ed Kellie of Aminco Refrigeration Products Co. Convention committee comprised G. H. Poggen, vice chairman; H. J. Scullen, inspection trips; F. J. Drogosch, transportation; G. R. Kingston, golf; E. Feinberg, entertainment; C. D. Mericle, publicity; F. Y. Carter, reception; G. H. Poggen, finance; G. D. Bright, old timers; and Mrs. T. J. Ammel, ladies committee.

REWA REGION NO. 5 MEETS IN MICHIGAN

Summer meeting of wholesalers in Region No. 5 of Refrigeration Equipment Wholesalers Association will be held July 12-14 at St. Clair Inn, St. Clair, Mich.

This meeting has been planned primarily as a "fun and games" session, with the emphasis definitely more on pleasure than business. Although no specific invitations are being issued, the meeting is open to any manufacturers' representatives who may wish to attend.

Recreational facilities available at the summer resort spot chosen as the site of the meeting will include boating in two cabin cruisers, fishing, swimming, tennis, and golf. "Official" dinner of the meeting will be held at the Inn on Friday, July 13, with an evening of dancing at the Black River Country Club scheduled for the following night.

Ned Mason of Mason Supply Co., Columbus, Ohio, is chairman of the committee responsible for this meeting. Joe Oberc of J. M. Oberc, Inc., Detroit, Mich., is chairman of the region.

NEW TUBING PLANT AIR CONDITIONED

Complete air conditioning is a feature of the new addition to the Beaver Falls, Pa., plant of the Babcock & Wilcox Tube Co., manufacturers of stainless steel tubing. The new air-conditioned building is devoted exclusively to the inspection, marking, packaging and loading for shipment of stainless tubing. The air conditioning keeps the atmosphere clean and prevents the accumulation of dust, etc. on the tubing. The system keeps the building at a comfortable 70-75 F working temperature.

REMINGTON HOLDS SALES FORUM

LOOKING AHEAD to increased air conditioning sales this year are these factory officials and sectional sales and service representatives of Remington Corp., who recently met in a week-long forum at the company's Auburn, N. Y., plant. H. L. Laube, president, is seated at the left, and next to him is E. A. Bonneville, sales manager.

* * *

REMINGTON SEES BEST SALES AHEAD

An increase of 321% for the fiscal year 1949-1950 over the preceding year's sales was reported by E. A. Bonneville, sales manager of the Remington Corp., at the opening session of a recent week-long forum held by the company at its Auburn, N. Y., plant. An even sharper rise in sales of the company standard ½ to 1½ hp units is anticipated for the coming year.

The sales increase was cited by Bonneville as reflecting a growing demand for "individualized" decentralized units for homes, hotel rooms and professional offices. Industrial and government orders also figured prominently in the sales rise, as did the company's exports to 53 foreign countries.

Participants in the sales session included sectional managers and service managers for the New England, East Central, Southern, Southwest and Midwest sales regions, as well as executives of Remington's advertising agency. Sales, promotion, distribution, service and advertising policies were discussed.

An annual market comparable to household electric refrigerators was set by Bonneville as the industry's potential. Air conditioning, he said, is still in its infancy—in the same relative position the electric refrigerator was in 1928. Customers, and dealers as well, must be shown that air conditioning isn't just a hot-weather luxury, but a year-around essential to health and comfort.

SHERER ANNOUNCES FINANCING PLANS

Sherer-Gillett Co. has announced to its commercial refrigeration distributors a financing plan covering the entire continental United States. Actually, there are two plans—one for the financing of retail paper and the other, available to those operating under the retail plan, for the financing of wholesale or floor plan paper.

The retail financing arrangement will not only enable distributors to turn into cash retail paper on new refrigerators and the accessories sold with them, but will also permit of their financing the sale of used refrigerators as well as allied items such as shelving, gondolas, check-out counters, scales, slicers and grinders.

The plan will enable Sherer distributors to stabilize financing by working through one channel on both retail and wholesale paper.

MISSOURI RSES TO MEET IN SEPTEMBER

The Missouri Association of Refrigeration Service Engineers Society has set Sept. 28-30 for its annual convention at the Commonwealth Hotel, Kansas City. Cecil R. Visger is general chairman of the convention.

An extensive technical program is being planned, plus a luncheon and banquet, the latter on the night of Sept. 30. All refrigeration people in the Missouri area are invited to attend.

WE TAKE CARE OF THE drip

Eastern

CONDENSATE

DISPOSAL UNIT

Designed for the air conditioning field, here is a completely automatic, foolproof unit that removes condensate fluids from the receiver tank and pumps them to an outside drain. Simple to install . . . Low operating cost . . . Totally enclosed motor . . . Compact, rugged, rustproof construction . . . Quiet and reliable in operation.

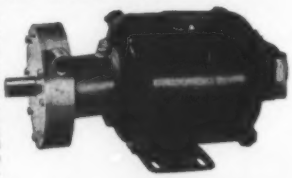
SPECIFICATIONS

Tank — Approximately 1½ gal. capacity with ¾" inlet, ½" outlet. Brass with black enamel outside. Pump—Bronze centrifugal pump. Delivery app. 4½ GPM at 0 PSI and shut off of 12½ PSI. Motor — 1/40 HP 3450 RPM, single phase, 60 cycles, 115 volt, totally enclosed, ball bearing, capacitor start motor.

Control — Controlled by a float operated switch, so set to pump out app. 0.8 gal. of condensate at each operation. Built-in check valve prevents the outlet line from draining back into the tank. Overall Dimensions—5¼" wide; 9⅞" long; 12 15/16" high. Weight 21 lbs.

Investigate Eastern's Proven Pumps for ICE CUBING MACHINES

Designed for continuous duty under severe operating conditions, the Eastern Model D-11 Pump is a heavy duty centrifugal pump. Size: 10" x 5½" x 5". Weight: 18 lbs. Power: ⅓ HP, heavy duty, split phase, fully enclosed, induction motor. Available in 110 or 220 volts A.C. Maximum output: 8 GPM at zero pressure. Maximum pressure: 14.5 PSI at shut off. Furnished in special alloys for hazardous service. Built for dependable service.



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296 ELM STREET

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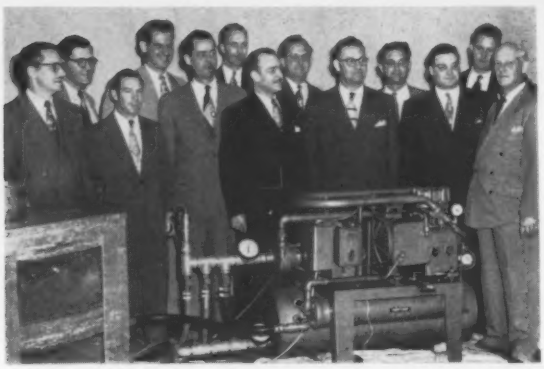
SALESMEN MEET MERCHANDISE



OFFICIALS of Southern Heater Co., new Acme Industries representative in Louisiana and southern Mississippi, are shown here inspecting the equipment they'll be selling. The photo was taken during a recent meeting for the company's dealers. In the center of the front row (dark suit) is Carl W. Millsom, manager of Acme's Cold-Flow Division, and at extreme right is Emmett A. Smith, president and general manager of Southern Heater Co.

* * *

SOUTHERN HEATER TO HANDLE ACME

Acme Industries, Inc., Jackson, Mich., has announced the appointment of Southern Heater Co., New Orleans, as its exclusive representative for the state of Louisiana and the southern portion of Mississippi.

Emmett A. Smith is president and general manager of the company; Laurence F. Babst is secretary and treasurer; Alvin J. Sogne is office manager and sales representatives are Edward Fitzpatrick, H. J. Flynn and Herman Toups.

New sales representatives who will handle the Acme line are H. N. Stall, J. I. Hebert and James Coleman.

More than 200 refrigeration, heating and air conditioning contractors recently attended a meeting introducing the Acme line of equipment in the Southern Heater territory.

SIEGFRIED NAMED REMA PRESIDENT

W. A. Siegfried, of Superior Valve & Fittings Co., is the new president of Refrigeration Equipment Manufacturers Association for the 1951-1952 fiscal year. He began his term of office on May 1, at the REMA spring meeting in Hot Springs, Va.

R. L. Sears, of the Par Compressor Div. of Lynch Corp., was elected vice president of REMA; John E. Dube, of Alco Valve Co., treasurer; and L. C. McKesson, of Ansul Chemical Co., secretary.

Newly elected REMA directors are J. A. Dugan, Bundy Tubing Co.; James Emmett, Jr., Jas. P. Marsh Corp.; Henry Steinhorst, Emil Steinhorst & Sons, Inc.; J. W. Krall, Tyler Fixture Corp.; and H. M. Brundage, General Electric Co.

Continuing as directors are Jack Searls, White-Rodgers Electric Co.; W. F. Switzer, Frigidaire Div., General Motors Corp.; H. Blake Thomas, McQuay, Inc.; and Lud Emde, Temprite Products Corp.

GROUP WILL HANDLE QUESTIONS ON CODE

The American Standards Association has requested that all questions regarding proper interpretations of the provisions of the ASA-B9 Safety Code for Mechanical Refrigeration be referred to the Interpretations Sub-Committee, which has been appointed to handle such matters.

E. T. Benson, of Frigidaire, is chairman of the sub-committee, and other members are J. R. Chamberlain, York Corp., S. V. James, Underwriters Laboratories, Lee J. Wallace, J. P. Salamini Co., J. R. Rehard, and M. C. Turpin, secretary of ASRE.

...SILVALOY #355 helped to solve this complex brazing problem with outstanding success!

The component parts of this excellent Casco monel and stainless steel iron are furnace-brazed at a highly satisfactory rate of production. In assembly line, the joint areas are properly fluxed and Silvaloy #355 Brazing Alloy Preforms are positioned to join the various units. The assembly is then secured in a stainless steel fixture and placed in an atmospheric controlled Rockwell conveyor type furnace.

The Silvaloy joints produced are clean, strong and leakproof. Life tests for corrosion have been made and all reports assure prolonged, trouble-free service.

Silvaloy #355 is the only silver brazing alloy with properties and characteristics required for this operation. It has enabled this manufacturer to maintain a profitable rate of production and reduce drastically the percentage of rejects to an extremely low figure.

There is a Silvaloy silver brazing alloy for every type of brazing operation—in wire, strip, rings and preformed shapes. A staff of Silvaloy technical experts is also available for consultation. Take advantage of this useful service. Your inquiry will be given immediate attention. ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

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MORE COMPACT—MORE EFFICIENT

Servel SUPERMETIC

UNITS for Commercial Electric Refrigeration and Air Conditioning Fixtures

Now **CAPILLARY 1/5 H. P. UNIT**—ideal for small freezers, ice-cream cabinets, display fixtures, beverage dispensers, office water coolers and many other types of applications.

Now **1/4 and 1/3 H. P. MODELS**—designed for both capillary tube and expansion valve . . . more compact . . . internally spring-mounted compressors reduce vibration and wear—give longer life.

PLUS a MORE LIBERAL 5-YEAR PROTECTION PLAN

Now **REDESIGNED AND IMPROVED 1/2 and 3/4 H. P. UNITS** . . . added capacity . . . low height . . . more compact . . . dual use . . . adaptable for either medium- or low-temperature applications.

Now **REDESIGNED AND IMPROVED 1 H. P. UNIT** now covered by the Supermetic 5-Year Protection Plan. Has the same hermetically sealed, steel-cased compressor design that has been such a sensational success in the Servel fractional H. P. units.

Now **IMPROVED 1-1/2 and 2 H. P. TWO-CYLINDER CONDENSING UNITS,** four-cylinder 3 H.P. condensing units, and air-conditioning power units up to 5 H. P. . . . advanced design . . . more compact . . . increased capacity.

Now **IMPROVED 1/2, 3/4, 1, 1-1/2, 2 and 3 H. P. WATER-COOLED UNITS . . .** Surprisingly small and more compact.

MAIL THE COUPON TODAY

for complete specification and capacity data on the full line, and those sizes in which you are most interested. If you are a dealer or serviceman, ask for the name and address of the nearby authorized Servel wholesale supplier for your territory.

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Servel SUPERMETIC

Models for every commercial refrigeration and air-conditioning use . . . 1/5 to 5 H. P.

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GET INTO THE KITCHEN . . .

Continued from page 37

with flame-type equipment, would be so high that it would throw the cost of the cooling system out of line. With electric equipment, however, arrangement can be made to exhaust the cooking heat and fumes, and the entire kitchen area can be kept comfortable at a reasonable tonnage for air conditioning.

Some special provision does have to be made to provide make-up air to replace that pulled out of the kitchen by the exhaust system. In the Missouri Pacific Hospital job, the heat generated by cooking is exhausted at a rate of 8000 cfm, which is approximately equal to the amount of conditioned air (8500 cfm) introduced by the conditioning system. So it was necessary to bring in outside air to

"Kind of new at this sort of thing, ain't you, Mac?"

make up for some of that being pulled out.

This "extra air" is introduced into the area through grills located above and in front of the cooking area. It is brought in at the rate of 5000 cfm, which has been found sufficient to handle the exhaust requirements without interfering with normal operation of the air conditioning system in the main kitchen area. During summer months, air is introduced at regular outside temperature; in winter, air introduced for make-up purposes is tempered to about 68 F by a steam coil.

The value of air conditioning in mass food-serving kitchens can't be overestimated, the Nachman company believes, in terms of what it does for increased employee efficiency and higher morale. Kitchen workers now enjoy the same comfortable working conditions as those in any other department of the hospital; no longer need there be a "wall" between the kitchen area and other areas, as far as comfort is concerned.

Uniforms stay fresh and clean-looking longer; because they do their jobs better when they're comfortable, fewer workers are needed; and because they *are* more comfortable, there's less absenteeism, fewer employes away from their jobs because of illness, etc.

An average of 1200 meals per day are served in the hospital, all prepared in the main kitchen. Special diet meals, which average about 150 per day, are prepared in an adjoining special diet kitchen also all-electric. After the special diets are prepared, they are taken to the patient's floors by the dumb waiter or by electrically-heated conveyor. Another dumb waiter brings food to the

you hold a *pat* hand . . .

when you use *Cee-Kleer*

The Combination Sight Gauge-Drier

As sure to win as a pat hand is your quick diagnosis of refrigeration trouble with the Cee-Kleer Sight Indicator. Here is ***full vision*** from any angle — completely around the sight gauge. You can spot trouble instantly.

Combination Cee-Kleer Sight Drier helps you handle service calls faster, more effectively and with greater satisfaction to your customers. Every service job builds more business when you use CEE-KLEER.

Every Cee-Kleer Sight Drier, Sight Gauge Indicator or Refillable Drier is unconditionally guaranteed to be satisfactory.

Cee-Kleer PRODUCTS, INC.
947 W. Sixth Street
Cincinnati 3, Ohio

If your distributor does not have Cee-Kleer in the size you need, fill in and mail this coupon TODAY.

Send me more information of CEE-KLEER.
My Distributor is.....
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seventh floor, where from 150 to 200 employes are served at noon.

From a refrigeration standpoint, aside from the 30-ton Curtis air conditioning system, equipment includes 30 feet of stainless steel salad refrigeration counters, a 45-cu. ft. McCall stainless steel reach-in unit, a 25-cu. ft. stainless steel upright freezer, and two large walk-in units located opposite the table for salad and vegetable preparation. The walk-ins are maintained at 38 F, and are equipped with reach-in doors so that most-wanted items can be more easily available. Recording thermometers are located outside all the refrigerated rooms so that it can easily be determined whether or not proper temperatures are being maintained. The walk-ins are served by a Copeland condensing unit.

Other equipment in the kitchen consists of four electric ranges, three electric baking ovens, a broiler, grill, two fry kettles, soup kettle, tilt kettle, and compartment steamer, not to mention a whole battery of portable electric appliances. Each of the ranges is equipped with thermostatically-controlled electric ovens; three of them have three-heat hotplate tops and the fourth has a griddle top used for all frying purposes. A backshelf broiler is located above the fourth range.

The bakery section of the kitchen has its own refrigerators, sinks and work tables, so that it can operate independently from other cooking operations. The 45-cu. ft. refrigerator, mentioned previously, serves this department.

Two additional walk-in units are located in the commissary for other storage. Between 700 and 800 half-pints of milk, 10 gallons of whole milk, 18 quarts of cream, 10 quarts of buttermilk, and 24 pounds of butter are used daily to serve patients, employees and for cooking.

How does the Nachman company merchandise this phase of its operation? The same way that it merchandises any other major installation—by running large-size newspaper advertising with photographs of the installation, perhaps some figures on what the installation has accomplished, and if possible a statement by the user on the effectiveness of the job. The "use the user" technique is well developed by the company, which uses every chance it gets to take prospects on a tour of installations it has previously made. All jobs are photographed both for

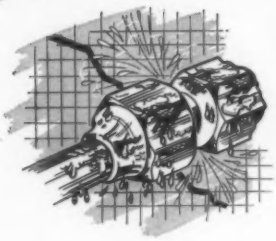
HUMIDITY CONTROL

A NEW publication, designed to present current technical and operating information on Kathabar humidity control equipment, has been instituted by Surface Combustion Corporation, Toledo, Ohio.

This bulletin, entitled "The Humidity Engineer," is now being published periodically by Surface Combustion and distributed to all persons concerned with the humidity control field and its attendant problems. The magazine is intended to provide up-to-date information on Kathabar engineering developments as applied to all phases of the air conditioning field. Comfort conditioning and industrial processing applications are two additional important features to be covered in this bulletin.

Air conditioning engineers, process engineers, and plant maintenance men are offered this magazine on a gratis basis by writing on their letterhead to Surface Combustion Corporation, Toledo 1, Ohio, requesting addition to "The Humidity Engineer" mailing list.

Here's the Truth



about losses from unrelieved flare nuts that creep loose!

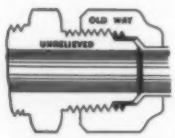
Unrelieved flare nuts, when subjected to alternate frosting and defrosting, do "creep" loose. Actually, the "creeping" loose is caused by the "heaving action" resulting from the freezing water trapped between the flare nut and fitting.

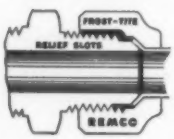
When water freezes to become ice it MUST have room to expand. If there is no room for expansion — or relief — the flare nut will work or "creep" loose.

When unrelieved flare nuts are subjected to this tremendous "heaving force", 1) refrigerant leaks *out* of the system, and 2) water is forced *into* the system.

Installing REMCO FROST-TITE with forged relief slots will insure against these costly losses.

Get REMCO's FROST-TITE





To Assure GREATER PROFITS

Note how in the top diagram, an old-style unrelieved flare nut can loosen up because water can completely fill the space between the nut and the fitting . . . then during the "ON" cycle, this water freezes and expands, creating a tremendous heaving force which causes the nut to loosen or crack.

Not so in Frost-Tite (bottom diagram) with forged frost-relief slots. Here relief is provided for the expanding ice . . . no force is created, and thus there can be no loosening, splitting, or cracking.

Frost-Tite Flare Nuts cost no more than ordinary unrelieved flare nuts — are a "Must" for lowside connections, should be used everywhere in the system.

Send for Literature and Prices.

REMCO INCORPORATED ZELIENOPLE PENNSYLVANIA

CARRIED IN STOCK BY LEADING WHOLESALERS EVERYWHERE

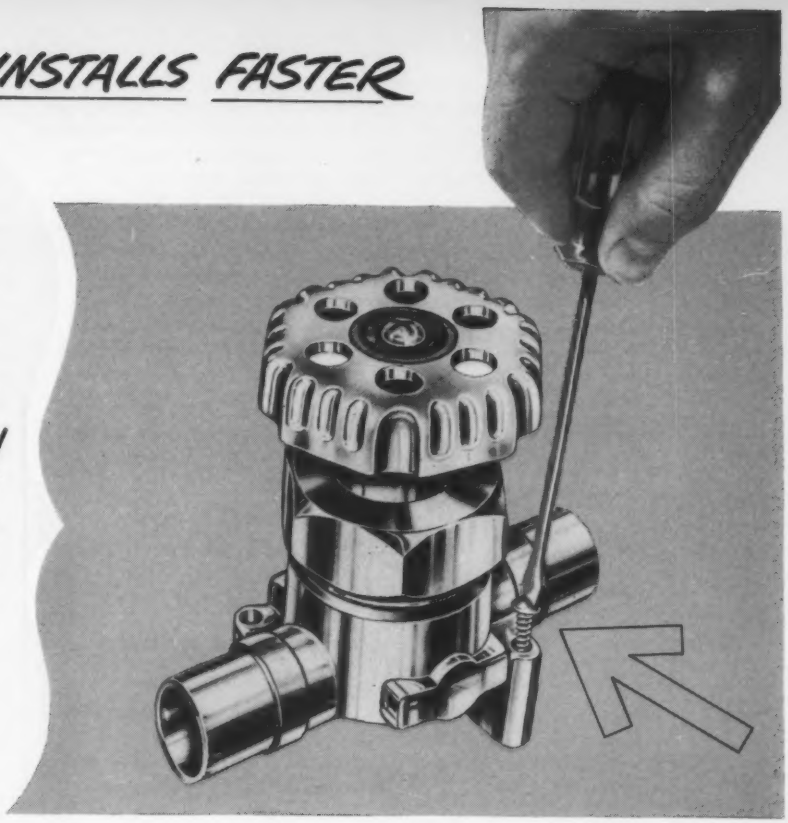
West Coast warehouse stock at 2103 So. San Pedro, Los Angeles, Calif.

EXPORT DEPARTMENT: Metchler, Armstrong, Dessau — Ridgefield, N. J.

Circle No. 40 on Reader Service Card for more information

THIS LINE VALVE *INSTALLS FASTER*

It holds the screw while you drive it!



GET

KEROTEST

IN-LINE

DIAPHRAGM PACKLESS

LINE VALVES

Check these "Extra-Value" Features

- ✓ **FULL FLOW**—wide passages, unrestricted flow pattern assures minimum pressure drop.
- ✓ **REDUCED SERVICING**—fatigue-free, special alloy, non-perforated diaphragms practically eliminate replacements.
- ✓ **FOOLPROOF**—metal-to-metal seal back seating features permits safe diaphragm replacement under pressure if ever needed.
- ✓ **INSTALL FASTER**—special extended leg holds the mounting screws while you drive them. Prove this yourself!
- ✓ **CONVENIENT**—comfortable handwheel design permits easy operation from all positions even in cramped quarters.

Always Extra Value *at No Extra Cost*

KEROTEST

Manufactured exclusively by

KEROTEST MANUFACTURING CO. **PITTSBURGH 22, PENNSYLVANIA**

Circle No. 41 on Reader Service Card for more information

a record of the installation and for use as sales presentation material to new prospects.

Both in its air conditioning and refrigeration work and in this comparatvely new field of kitchen engineering, Nachman works hard at seeing that the customer gets exactly the results he expects to get from each job it puts in. So recommendations from past customers are readily obtained.

As was mentioned before, Nachman & Co. considers its kitchen engineering service as simply an enlargement of its basic service to customers in its principal field, air conditioning and refrigeration.

"After all, planning a kitchen for a large-scale food service operation means just applying common sense to your customer's requirements," Leslie Nachman says. "You have to familiarize yourself with certain basic design and layout principles. Then you find out the job your customer has to accomplish, and arrange things so he can accomplish it."

Basically, any food-serving layout must meet two main objectives: (1) speedier service to patrons, and (2) smoother kitchen operation. You place within the reach of every operator—cook, baker, dishwasher, waiter—the things they need to work fast and most efficiently.

Every kitchen has two main areas: one area for food preparation (vegetables, meats and other quantity cooking, quantity baking, short-order preparation, and storage), and another for dishwashing and refuse disposal. Keep the first area as handy to the kitchen exit as possible, and make the first handy to the entry to the kitchen. That's not, in any sense, as easy to do as it sounds, but there you have the principle of efficient mass-feeding procedure.

And you can take Leslie Nachman's word for it that it's a natural tie-in with a well-established contractor's usual air conditioning and commercial refrigeration activities.

The Nachman organization, by the way, is really proud of being what amounts to a "family affair". Louis Nachman, the father, is head of the firm; Norman, a graduate air conditioning engineer, lends his talents to design work and installation supervision; Shelton, another son, is an expert draftsman and is responsible for presentations, layouts, etc.; and son Norman directs the kitchen engineering activities.

OLD BUILDING GETS A MODERN COOLING PLANT

The old Philadelphia Manufacturers Club building at Broad and Walnut Sts. in Philadelphia has been converted into a modern, completely air conditioned 12-story bank and office building.

It is expected that the year-round air conditioning system investment will produce its own return in increased rental value, through enhancement of office space desirability. The installation features a Carrier Weathermaster conduit system with individual room control for all exterior offices, similar to the installation in the United Nations Secretariat building.

Exterior offices are served by individual room units; and a central unit on each floor, supplied with chilled water by the central refrigeration machine, handles offices in the interior zone. A third system distributes air through ceiling diffusers to the bank spaces in the basement and on the first and second floors.

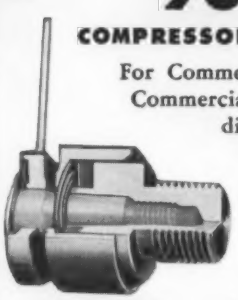
ROTARY SEAL

Replacement Units

✓ Easy to install
✓ Simple in Construction
✓ Efficient in Operation
✓ Economical

AVAILABLE FOR MORE THAN 900 COMPRESSOR MODELS

For Commercial, Semi-Commercial, Air Conditioning, and Home Refrigerator Compressors ..... Units are available for all Standard makes . . .



UNIT No. 3400

ROTARY SEAL Replacement Units are the original precision-built replacements .... Proven for satisfactory performance over 20 years of successful use.

AT ALL THE mechanical seals for ROTARY SEAL COMPANY rotating shafts LEADING JOBBERS

"Seal with Certainty!"

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CHICAGO 14, ILLINOIS, U.S.A.
CANADIAN AGENT: 2025 ADDINGTON AVENUE
MONTREAL 28, QUEBEC, CANADA

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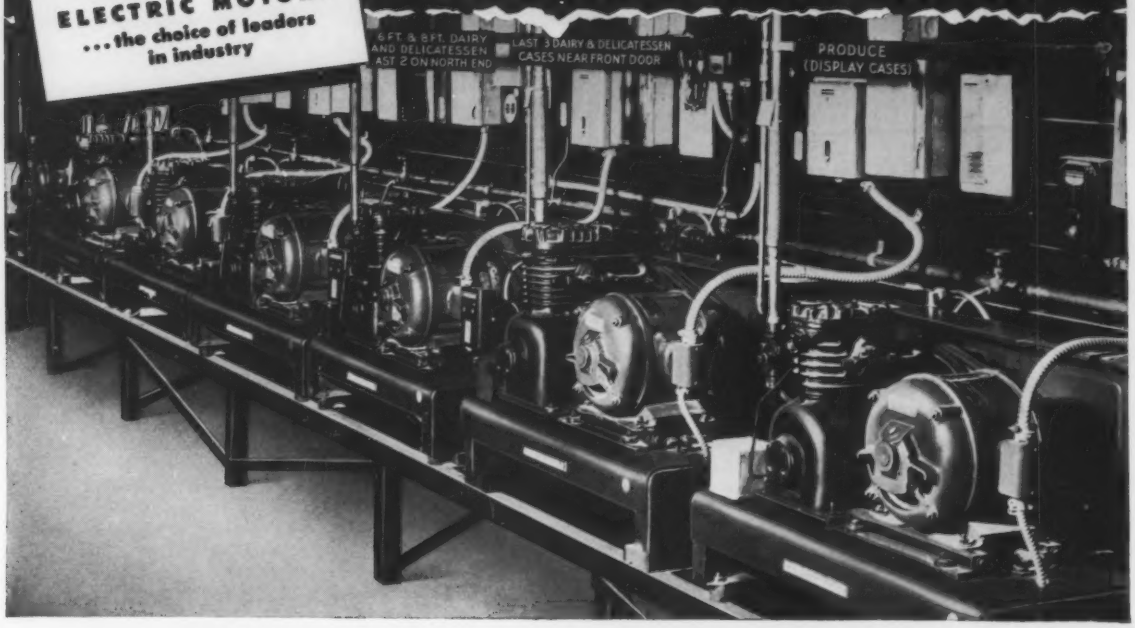
Wagner
ELECTRIC MOTORS
... the choice of leaders in industry

it *pays* to be particular about your choice of motors


6 FT. & 8 FT. DAIRY AND DELICATESSEN
LAST 2 ON NORTH END
LAST 3 DAIRY & DELICATESSEN CASES NEAR FRONT DOOR
PRODUCE (DISPLAY CASES)

Wagner Capacitor-Start Motors—½ to 3 hp.

Wagner Repulsion-Start Induction Motors—½ to 15 hp.

you can count on

Wagner MOTORS

to furnish dependable power for your products

"A good motor is one I seldom hear about—and a good motor manufacturer is one who provides prompt honest service for the few motors I do hear about." These words, from the Service Manager of one of the large manufacturers who use thousands of Wagner Motors each year as standard equipment for their products, pretty well sum up the reasons why it will pay *you* to standardize on Wagner Motors.

You get motors that give uniform performance with exceptionally little trouble ... you get well-known motors that add a real selling point to your product ... and you get the advantage of a large nationwide service organization to promptly and efficiently repair the very few motors that require attention.

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Wagner Electric Corporation 1891 WE 1951

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS – AIR AND HYDRAULIC

BRANCHES IN 31 PRINCIPAL CITIES

A51-16

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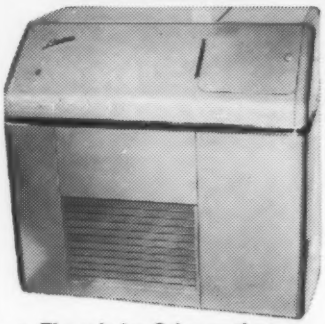
Circle No. 44 on Reader Service Card

CASH IN ON THE
BIG DEMAND
FOR THE NEW
LOUDON
AUTOMATIC ICE CUBER



- The only Ice Cuber on the market that makes round, clear, solid ice cubes.
- Produces a fresh supply of 69 clear ice cubes every 30 minutes.
- Equipped with new, automatic timer.

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COMMERCIAL REFRIGERATION EQUIPMENT
2528 - 27th Avenue South,
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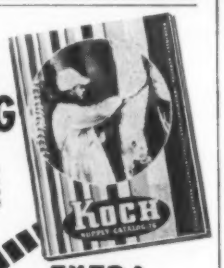
the
KOCH CATALOG
of
BUTCHER SUPPLIES
Gives You



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plus
EXTRA PROFITS
Sell to
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• Meat Markets • Packing Houses
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Circle No. 45 on Reader Service Card

USEFUL BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

Air Conditioning Equipment . . . A complete line of equipment needed to do a job of air conditioning—cooling, heating, dehumidifying, cleaning, filtering, circulating—is covered in a 16-page condensed catalog available from Westinghouse Electric Corp., Sturtevant Div.

Circle No. 100 on Reader Service Card

GI Water Cooling . . . How to meet federal requirements for water cooling and conditioning equipment in barracks, mess halls, photo labs, and similar installations for the armed services under the nation's rapidly expanding defense program is outlined in a new folder (Form 851) which also exemplifies government procurement data on water coolers and water filters. This new folder is aimed at helping refrigeration suppliers quickly relate official requirements to correct model coolers in bidding these "DO" rating jobs. Available from Filtrine Mfg. Co.

Circle No. 102 on Reader Service Card

Thermo-Regulators . . . Planned to aid engineers and technicians select the most suitable equipment for temperature control work, this fully illustrated 12-page catalog (No. 18) covers the H-B line of mercury actuated thermo-regulators and thermostats. Available from H-B Instrument Co.

Circle No. 103 on Reader Service Card

Humidity Control . . . Product processing conditions with temperatures as low as –60 F can be maintained by the latest application of the Kathabar humidity control system described in this bulletin (K-151) published by Surface Combustion Corp. Several new features in low temperature conditioning are presented. Typical flow diagrams of actual installations are presented.

Circle No. 104 on Reader Service Card

Electrical Tapes . . . More than 30 uses for four "Scotch" brand electrical tapes for construction and maintenance work are described in an 8-page brochure available from Minnesota Mining & Mfg. Co. Contains 33 photographs of actual applications. Properties listed for each tape include tensile strength, elongation, adhesion, fusion, dielectric strength and constant, insulation resistance, power factor and electrolytic corrosion factor.

Circle No. 105 on Reader Service Card

Ice Cream Freezers . . . A new booklet containing illustrations and specifications on all eight Taylor Freezers in the 1951 line. Suggestions on selecting the right freezer for the job also are included. Available from Tekni-Craft.

Circle No. 106 on Reader Service Card

Freon Coolers . . . This 12-page catalog (No. 101) devoted to Freon or ammonia coolers of the dry expansion type is designed to aid anyone concerned with air conditioning and process, industrial, or commercial refrigeration applications. In addition to describing the standard line of P-K coolers, it contains cooler selection data, pressure drops, and typical piping arrangements, as well as charts and tables showing cooling surface required for varying capacities and flow rates and for various baffle spacings in single and two-circuit designs. Available from Patterson-Kelley Co.

Circle No. 107 on Reader Service Card

Liquid Chiller . . . A specification sheet (50-A Rev) on the Flow Cold liquid chiller, illustrating and describing both single and dual compressor units and accessory equipment such as finned coils, convectors and cooling towers. Dimensions and ratings of all models are provided, and tabulation of performance at 40, 46, and 50-degree water are given. Available from Acme Industries, Inc.

Circle No. 108 on Reader Service Card

Store Planning Chart . . . Designed as a free service by S. A. Hirsh Mfg. Co. this "Key to Extra Sales and Greater Profits" diagrams recommended merchandise locations and fixture arrangements in small, medium and large food stores. Designed to aid refrigeration dealers with their store planning problems, both in regard to refrigerated and non-refrigerated fixtures.

Circle No. 109 on Reader Service Card

Meat Industry Supplies . . . Printed since the imposition of price controls, this 68-page catalog (No. 76) gives prices and specifications on about 2000 products used by the meat industry. It shows equipment for retail meat markets, locker plants, sausage makers, rendering plants, abattoirs, and packing houses, including many new items which have never been offered to the trade before. Available from Koch Supplies.

Circle No. 110 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

How "one point" can clinch the sale!

10 New Hermetic Models

Kelvinator *Top Quality* Condensing Units!

Point to the Kelvinator name-plate—and see how that name reads "finest quality" to your condensing unit customers! Now more than ever, as the demand for dependability and finest quality increases, Kelvinator Condensing Units can make sales and build business for you. Check Kelvinator's wide range of 10 new hermetic models, up to and including ½ H.P. Each is precision-built and tested to rigid Kelvinator standards. Each is competitively priced—and performs at peak efficiency. Get and hold good business and good-will—sell Kelvinator on your next new or replacement installations.

For complete information, call your nearest Distributor or Zone Office. Kelvinator, Division of Nash-Kelvinator Corporation. Detroit 32, Michigan.

A selection of 15 Kelvinator Open-Type models from ¼ H.P. to 5 H.P. is also available.

PROFIT TODAY...BUILD FOR TOMORROW WITH

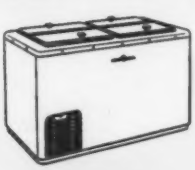
Kelvinator

THE NAME THAT SELLS...THE NAME THAT SATISFIES!

KELVINATOR BEVERAGE COOLERS

KELVINATOR FROZEN FOOD MERCHANDISERS

KELVINATOR WATER COOLERS



KELVINATOR ICE CREAM CABINETS

KELVINATOR AIR DRIER

Circle No. 46 on Reader Service Card for more information

NEW PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Duct Insulation

Product: Asbestos protected "Dux-Sulation" for insulating air ducts.

Manufacturer: Grant Wilson, Inc., Chicago, Ill.

Features: Designed for maximum insulating and sound absorbing efficiencies on all types of air conditioning, ventilating and warm air heating duct work. Saves 3 out of 4 degrees of temperature which otherwise would be lost. Won't harbor insects or rodents. Comes complete with asbestos and adhesive strips for quick and simple application. Available in standard size ½-inch and 1-inch thick and 36 inches wide in 100-sq.ft. rolls.

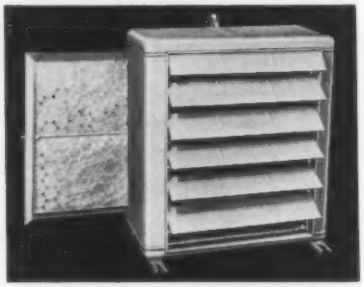
Circle No. 130 on Reader Service Card

Comfort Cooler

Product: Low cost ceiling type comfort cooler.

Manufacturer: Kramer Trenton Co., Trenton, N. J.

Features: Only unit of its type using a filter. Filter is of standard size and of throw-away type. Keeps coil completely free of all dust and grease accumulation. Comfort cooler designed to be mounted in conditioned area, with compressor installed in remote location. Ceiling mounted, unit requires no floor or wall space. Requires no ducting and can be located to cover specific areas. Adjustable louvers cover complete discharge of unit and direct air stream. Low-speed motor and rubber mounting reduces noise. Installation is simple. Nominal capacity of 2.6 tons and can be used with 2 or 3-hp compressor. Capacity of 17,000 Btu/hr with entering air at 70 F dry bulb and 70% relative humidity with 30 F refrigerant temperature.



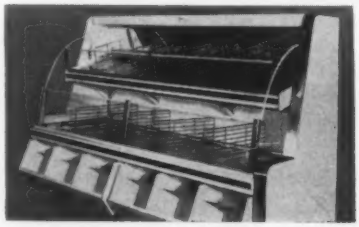
Circle No. 131 on Reader Service Card

Produce Case

Product: "Vegmart" all-purpose produce case.

Manufacturer: Fogel Refrigerator Co., Philadelphia, Pa.

Features: Provides merchant with complete self-service produce department in one case. Non-refrigerated top deck displays such produce as apples, oranges, and grapefruit. Refrigerated middle deck keeps perishables such as lettuce, celery, and beans fresh and crisp. Six large bins at bottom for dry produce. Huge capacity eliminates constant restocking. Adjustable dividers allow a large variety of items or mass display of selected ones, as desired.



Circle No. 132 on Reader Service Card

Fiber-Loy Vanes

Product: A new material, "Fiber-Loy", now being manufactured in the form of rotary vanes for Coldspot units.

Manufacturer: Wagner Tool & Supply Corp., Long Island City, N.Y.

Features: Tests have revealed that this material will withstand acids, moisture and corrosion. No indication of wear was apparent when units were dismantled after 14-month test. Basically a fine linen fiber impregnated with a thermo-setting plastic, Fiber-Loy is unbreakable, easily fitted, and exceptionally quiet in operation. Vanes made of this material are guaranteed to outlive the unit.

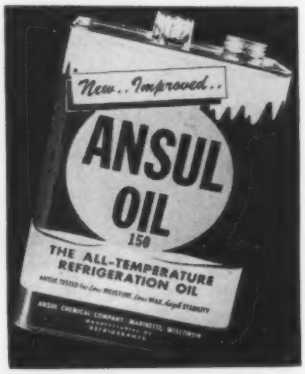
Circle No. 133 on Reader Service Card

Refrigeration Oil

Product: New and improved oil for refrigeration applications.

Manufacturer: Ansul Chemical Co., Marinette, Wis.

Features: Improvements based on actual specifications are claimed to include: lowest floc point (below –80 F), lower was content (50% less), lower pour point, lowest moisture (laboratory controlled to minimum), and high stability. Size range has also been expanded. Ansul's oil is claimed to be only product of its kind



NOW! sell more Room Air Conditioners at HIGHER PROFIT with LESS COMPETITION

ONLY REMINGTON PLUS-3 AIR CONDITIONING GIVES DEALERS THESE IMPORTANT SALES ADVANTAGES!

★ AMERICA'S *ONLY* COMPLETE LINE! A Remington room air conditioner for EVERY type of prospect

You're passing up easy-to-get profit if you aren't carrying Remington PLUS-3 Room Air Conditioners. *No other line is so complete.* No other line gives you such a full range of window and console models . . . air cooled and water cooled; such a full range of voltages; horse powers including ½, ¾, 1 and 1½; such a full range of cabinets. All models may be installed through windows or built into walls . . . installed singly or in multiple units so you can sell most every type prospect from homes and offices to industrial plants.

★ Fast turnover! More to offer! Competitively priced!

Remington PLUS-3 Room Air Conditioners provide *more* than just cooling. Your customers get clean, filtered air, circulated without drafts, and at the proper humidity. Provision can be made for moderate heating unit . . . excellent for Spring and Fall days. Now you can sell year-round air conditioning.

Remember, too, with filtered air, dirt and pollen are removed . . . a boon to respiratory sufferers. That is why you'll find Remington PLUS-3 Room Air Conditioners in *every country in the world* . . . operating under every possible condition.

Yes, Remington PLUS-3 Air Conditioners are fast turnover items . . . offer you many extra sales advantages . . . yet, are competitively priced.

★ Selling made easy and simple!

To help you sell, Remington not only backs you up with National Advertising, newspaper mats, colorful folders, display and advertising material . . . BUT Remington offers a *Special Comfort Selector*, which makes selling easy. With this selector and a few basic facts any salesman can diagnose the air conditioning problem, and dial the size unit required. It's that easy! Write for a Remington Comfort Selector, and ASK ABOUT THE REMINGTON DEALER PLAN . . . TODAY!

Remington

PLUS·3 Air Conditioning

HEALTH AND COMFORT FROM TEMPERATURE CONTROL

PLUS 1. *FILTERING* 2. *MOISTURE CONTROL* 3. *CIRCULATION*

JUST LOOK AT ALL THESE PROSPECTS!

- HOMES
- DOCTORS
- DENTISTS
- OPTICIANS
- LAWYERS
- OFFICES
- SMALL STORES
- SALESROOMS
- WAITING ROOMS
- CONFERENCE ROOMS
- MOTELS
- HOTELS
- HOSPITALS
- TOBACCONISTS
- CANDY STORES
- INDUSTRIAL PLANTS
- TRUCKS
- AND OTHERS

Remington Corp., 13 Willey Street
Auburn, N. Y.

☐ Please tell me about Remington Dealer Plan
☐ Send me Remington Comfort Selector

Name_____

Address_____

City_____ Zone____ State_____

Circle No. 47 on Reader Service Card for more information

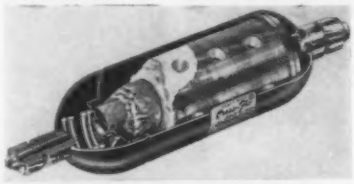
available in sealed quarts and 2 gallon containers. Other convenient sizes are 1-gallon, 5-gallon and 55-gallon drums. Oil is available in two viscosities, 150 and 300, for all refrigerants. Ansul is merchandising sealed quarts heavily with recommendation that service men open a new quart for every job, unused portion of quart being left behind for its good-will value. Three-quart carrying case has been designed to speed acceptance of this idea.

Circle No. 21 on Reader Service Card

Drier-Filter

Product: Improved "Cross-Flo" drier-filter with molded Remcal drying element and Fiberglas depth filter.

Manufacturer: Remco, Inc., Zelienople, Pa.



Features: Use of super-strength molded calcium phosphate drying element has increased moisture absorbing capacity and improved efficiency even at liquid line temperatures as high as 150 F and dew point temperatures as low as –60 F. New Fiberglas depth filter provides vastly increased filtering capacity to take care of even the dirtiest jobs and improved efficiency for even the smallest capillary tube job. Improved design also provides increased flow area. Pressure drop and premature clogging and plugging are entirely eliminated.

Circle No. 135 on Reader Service Card

CORY knows the answers...

on pressure regulators too!

It's Norgren!

For their famed "Push Button Automatic Coffee Brewing System," CORY CORPORATION of Chicago insists on any component being absolutely above question from the standpoint of performance. To maintain a very accurate flow of water for uniform quality of brew they use Norgren Regulators. And here's why, according to Cory engineers:

"We have continually tested water flow rate in various other regulators and have found that the Norgren Pressure Regulator has maintained the highest degree of accuracy over the longest period of use. Since we have been using the Norgren Pressure Regulator we have been able practically to eliminate service problems due to improperly operating regulators."

Swing to NORGREN REGULATORS

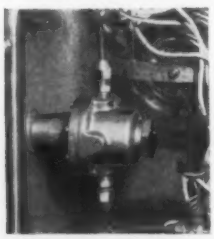
in cup vending machines for hot or cold beverages, soda fountains and other carbonated beverage dispensers — either factory equipment or as replacements — and you swing to more profits by cutting deep on maintenance costs!

For full details, write for

APPLICATION DATA SHEET No. 108

C. A. NORGREN CO.

241 Santa Fe Dr., Denver 9, Colo.



Bottom view, showing Norgren Pressure Regulator

Norgren

Lubricators, Regulators, Filters, Relief Valves, Check Valves, Air Governors, Needle Valves, Hose Assemblies and Couplings.

25 YEARS OF HELPING AIR POWER SERVE INDUSTRY BETTER

Circle No. 48 on Reader Service Card for more information

Oil Charging Pump

Product: "Mack Oil Sentry" refrigeration compressor oil charging pump.

Manufacturer: Mack Products Co., Winthrop Centre, Mass.

Features: Simple unit attaches to any 1-gallon can of refrigeration oil and provides refrigeration serviceman

with faster and safer way to charge compressors with oil. Measures oil as it pumps. Air or water cannot enter at any time while pump is being used. Can is completely sealed by neoprene gasket when plunger is in down position. Unique construction makes it possible to fill crankcase from any angle. Sturdy 4-foot neoprene hose is equipped with spring reinforcements at both pump and nozzle end, assuring extra long life and flexibility. Also can be used in other fields where difficult oiling problems are encountered.

Circle No. 65 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

To Save Space - To Save $$$

—here is America's Most
EFFICIENT REFRIGERATOR

400 lbs. Fresh Food Capacity *plus* 200 lbs. (approx.) Freezer-Locker Space

ONE CONDENSING UNIT ADJUSTABLE CONTROL

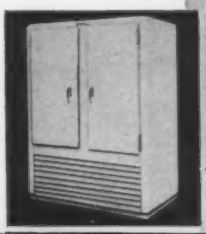
JORDON exclusive, thoroughly proven in thousands of installations. Saves floor space — speeds food handling — "dresses up" any location — cuts electric consumption in half because ONE refrigerator, ONE condensing unit, does the work of two!

AVAILABLE IN 2 SIZES FOR EVERY REQUIREMENT

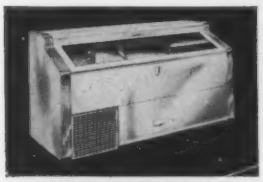
JORDON 14/6. 14 cu. ft. Normal refrigeration. 6 cu. ft. Freezer-locker space. Height 71¼". Depth 33". Length 43½".

JORDON 10/4. 10 cu. ft. Normal refrigeration. 4 cu. ft. Freezer-locker space. Height 69". Depth 29". Length 39".

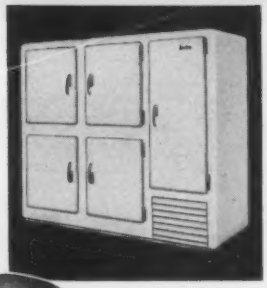
Write For Special Data Sheets

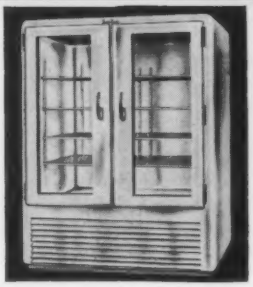


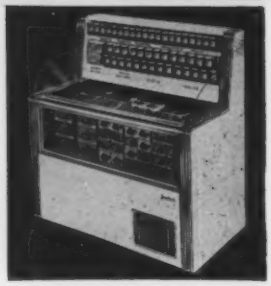
JORDON MANUFACTURES A COMPLETE LINE OF REACH-IN REFRIGERATORS and BEVERAGE COOLERS



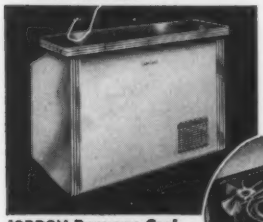
JORDON Heavy-duty Dry Beverage Coolers. 12 to 32 case capacity.



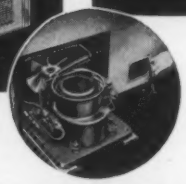




23—30—42—60 cu. ft. models available. Self-contained, hermetic units or for remote installation. Solid or glass doors.



JORDON Beverage Cooler with factory attached PANELYTE BAR TOP. All sizes.



Pull-Out Hermetic Units on Tracks

Factory and Sales Division

JORDON REFRIGERATORS

are sold and warehoused nationally by responsible and experienced dealers.

The New JORDON

"TELEVISION PANTRY"

—helps you sell more ice cream, sundae toppings, frozen appetizers and other related items for off-premise consumption. A big source of extra sales that caters to the increasing trend of television parties and home entertaining. JORDON offers a wide selection of LOW TEMPERATURE units with sliding doors, superstructures, or with the exclusive "REMINDER SHELF" illustrated above.

Jordon
AMERICA'S MODERN COMPLETE LINE

JORDON REFRIGERATOR CO.
58th Street & Grays Avenue
Philadelphia 43, Pa.

***Exclusive Export Distributor* — JOSEPH MILLER, 11 Broadway, New York City 4, N. Y. • Cable: JOMILLER**

Circle No. 49 on Reader Service Card for more information

The Model CVM 3153 is the newest and smallest member of the complete Kinney Vacuum Pump family. Compare it with any other mechanical vacuum pump in its class for:

FREE AIR DISPLACEMENT (2 cu. ft. per min.)

POWER (¼ HP motor)

ULTIMATE LOW ABSOLUTE PRESSURE (0.1 micron or better)

SIZE (14¾" x 10¾" x 13¼" high)

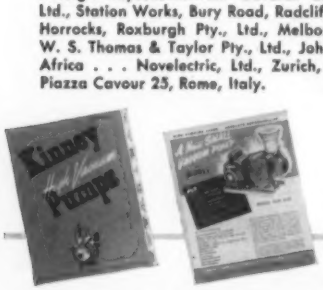
WEIGHT (only 70 lbs. complete)

Compare its quiet operation, its ease of starting, its sound construction . . . and you'll see why Model CVM 3153 is an important step forward in vacuum processing.

Wherever small size and big performance are required, put Kinney Model CVM 3153 to work. Use it in the laboratory. Use it in full scale processing installations, by itself or as a backing pump. Use it in permanent installations or as a portable unit for on-the-spot repair, service, or test work.

There's a Kinney Vacuum Pump for every service, from the big Single Stage 702 cu. ft. per min. Model 181420 to our "New Baby", Model 3153. KINNEY MANUFACTURING CO., 3618 Washington St., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Houston, New Orleans, Philadelphia, Los Angeles, San Francisco, Seattle.

Foreign Representatives: General Engineering Co. (Radcliffe) Ltd., Station Works, Bury Road, Radcliffe, Lancashire, England . . . Horrocks, Roxburgh Pty., Ltd., Melbourne, C. I. Australia . . . W. S. Thomas & Taylor Pty., Ltd., Johannesburg, Union of South Africa . . . Novelectric, Ltd., Zurich, Switzerland . . . C.I.R.E., Piazza Cavour 25, Rome, Italy.



Write today for Bulletins V45 and V51-A

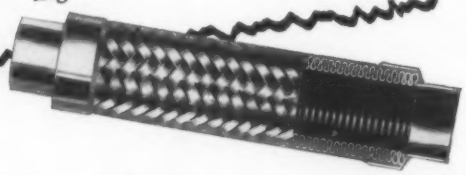
Kinney
VACUUM PUMPS

Circle No. 50 on Reader Service Card for more information

HERE'S WHY

CMH VIBRA-SORBERS are preferred in all types of refrigeration service

- ✓ Effective isolation of compressor noise and vibration
- ✓ Engineered for better and longer service
- ✓ High resistance to fatigue
- ✓ Complete choice of end connections for every type of installation
- ✓ Broad range of sizes
- ✓ Choice of materials for various refrigerants



For all types and sizes of refrigerating plants and air conditioning systems, CMH VIBRA-SORBERS provide the economical means of keeping compressor vibration out of rigid piping or tubing. This means longer life for the system and less danger of leakage through fatigue cracks or joints that have shaken loose. In the air conditioning system, VIBRA-SORBERS also minimize transmission of objectionable noise.

CMH VIBRA-SORBERS consist of corrugated tube sections with metal braid covering and are manufactured in standard I.D.'s from 3/16" through 4" and standard lengths which have been scientifically determined to prevent "whipping". They are made with extended tube ends, straight or bent, with male or female sweat couplings; also available with threaded fittings. Normally furnished in bronze, but also available in steel for ammonia systems.

Write for full information and descriptive literature.

In its complete line of flexible metal hose products, CMH also manufactures loading hose and refrigerant tubing armor. Write for information.

CHICAGO METAL HOSE CORPORATION
1321 S. Third Ave., Maywood, Illinois
Manufacturers of Flexible Metal Hose, Metallic Bellows and Bellows Assemblies and Expansion Joints for Piping

CMH ONE DEPENDABLE SOURCE for every flexible metal hose requirement

Circle No. 51 on Reader Service Card for more information

Bakery Freezer

Product: Model 27BF bakery freezer with 36 standard bun pan capacity.

Manufacturer: Federal Refrigerator Mfg. Co., Waukesha, Wis.

Features: Upright construction requires little floor space. Exterior and

interior is aluminum. Insulation is 4-inch sealed vapor proof fiber glass. Hardware is flush type. Dimensions are 38 inches wide, 26 inches deep, and 91 inches high. Specially designed to keep unwrapped bakery products "oven fresh", and save man hours, time, and money for bakers. Eliminates week-end rushes and enables baker to keep greater variety of goods on hand.

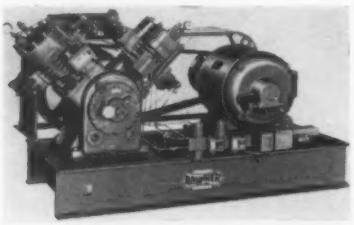
Circle No. 137 on Reader Service Card

40-hp Compressor

Product: Compact 40-hp compressor designed for refrigeration and air conditioning service.

Manufacturer: Brunner Mfg. Corp., Utica, N. Y.

Features: Adaptable to all types



of service. Pressure lubricated and fully protected by a device which automatically stops the compressor in event of an oil pressure failure. Equipped with high pressure cut-out which, when properly wired into control circuit, automatically stops compressor when pressure exceeds 175 psi. Can be equipped for unloaded start and same mechanism will afford four steps of capacity control. Available either as motor-compressor assembly or as complete condensing unit.

Circle No. 138 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

Tube Fitting Brushes

Product: Specially sized brushes for cleaning out copper tube fittings for quick, tight connections.

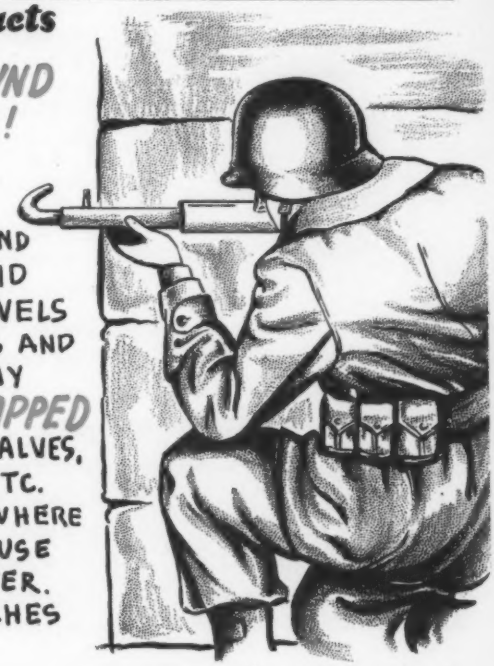
Manufacturer: Schaefer Brush Mfg. Co., Milwaukee, Wis.

Features: Made of rustproof stainless steel wire with comfortable hand-fitting handles. Precision built in standard sizes for ¼-inch to 2⅛-inch o.d. fitting sizes. Fittings are made smooth and clean in a matter of seconds, eliminating the difficulties of the file or sandpaper methods. Provide uniform and accurate cleaning with-

'Frigeration Facts

SHOOTS AROUND CORNERS!

WORLD WAR II SNIPER'S GUN COULD SHOOT AROUND CORNERS. LIQUID THAWZONE TRAVELS AROUND CORNERS AND REACHES ANY MOISTURE TRAPPED IN EXPANSION VALVES, RECEIVERS, ETC. MOISTURE ANYWHERE IN UNIT CAN CAUSE FREEZE-UP LATER. THAWZONE REACHES ALL OF IT.



DEAD AND GONE

THAWZONE IS NOT A MERE ANTI-FREEZE. IT ACTUALLY DESTROYS MOISTURE. THE MOISTURE CAN'T COME BACK TO WORRY YOU WITH CALLBACKS.

THAWZONE®

THE ONLY PRODUCT THAT DESTROYS WATER AND REACHES ALL OF IT

Do you want to do a complete job on moisture? Then Thawzone is your best bet. It is the only product that does both: 1. It reaches ALL the moisture. 2. It destroys moisture. Just add to any "Freon" or methyl chloride unit. Your wholesaler has Thawzone. Highside Chemicals Co., Clifton, N. J.

Circle No. 52 on Reader Service Card for more information

out danger of high spots and grooves. A companion set of brushes for cleaning the outside of tubing and pipe ends also is available.

Circle No. 139 on Reader Service Card

Vacuum Pump

Product: Model CVM 3153 vacuum pump.

Manufacturer: Kinney Mfg. Co., Boston, Mass.

Features: Designed for applications requiring a small vacuum pump

capable of producing high vacuums rapidly and dependably. Employing same oil-sealed pumping system used in other Kinney models, this new compound pump has free air displacement of 2 cu.ft. per minute. Designed for portability, complete unit weighs only 70 pounds, including ¼-hp motor, base, and pump. Produces McLeod gauge absolute pressure readings of 0.1 micron or better, and retains extremely high percentage of volumetric efficiency in low pressure regions.

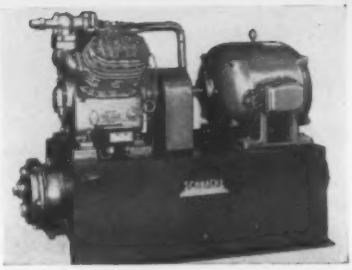
Circle No. 140 on Reader Service Card

Direct Drive Compressors

Product: Three direct drive compressors operating at 1750 rpm and formerly produced only on special order.

Manufacturer: Schnacke, Inc., Evansville, Ind.

Features: Models ATD-15, AFD-30 and AED-60 all are now available as complete condensing units. All operate at 1750 rpm and were designed for their top capacity, but these same compressors are also used for various other applications at slower speeds. Modern design of suction and discharge valves, steel backed alloy



replaceable bearings, force feed lubrication, efficient bellows type seals, and exceptional balance assure satisfactory use at top speed, either direct drive or belt drive. Tests made at 3300 rpm indicated efficient valve action and pumping capacity.

Circle No. 141 on Reader Service Card

Upright Freezer

Product: Model BB18 all-aluminum upright food freezer.

Manufacturer: International Products Corp., Los Angeles, Calif.

Features: 18 cu-ft. capacity. Available both in polished aluminum and white infra-red baked enamel finish. Four inner compartments with indi-

---

Below: Some of the 1248 curing bins and 1319 lockers at the Barlow-Strickland Freezer Locker Plant.

Lockers Combine with Pork Curing for GREATER PROFITS—with PALCO WOOL INSULATION

Send today for new Locker Plant Plan & Construction Manual

An unusual yet highly profitable freezer-locker operation combines the curing of over 800,000 pounds of pork annually with the service of 1319 lockers. More than 6,000 square feet of refrigerated area in this modern Barlow-Strickland Freezer Locker Plant at Douglas, Georgia, are protected by Palco Wool Insulation. Its low thermal conductivity (.255 B.T. U.) assures maximum operating economy plus constant low temperature control. Investigate today the savings you can effect by specifying PALCO WOOL INSULATION.

PALCO INSULATION WOOL

THE PACIFIC LUMBER COMPANY

100 Bush Street, San Francisco 4, California

35 East Wacker Drive, Chicago 1, Illinois

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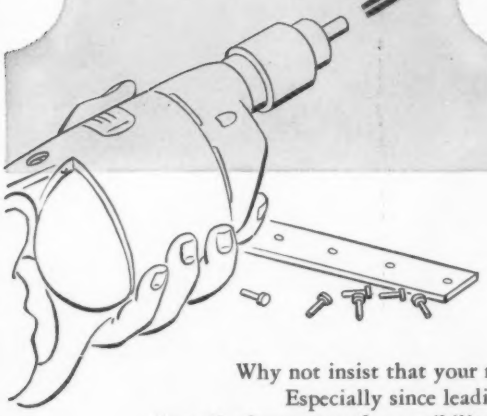
Your No. 1 DEMAND... the CONDENSER must be CLEANABLE

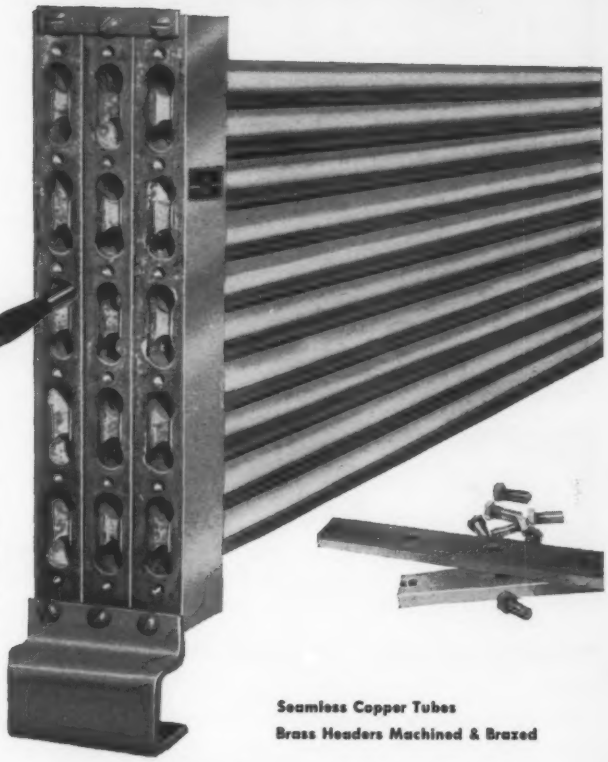
Because...

CLEANABILITY costs no more in the new HM condensers. Tremendous productive capacity has now made even the smallest models (⅓ H.P.) competitive with non-cleanable units.

CLEANABILITY is available now from many manufacturers who are equipping even their smallest assemblies with cleanable HM condensers in answer to industry demands.

CLEANABILITY prolongs the life of any unit—maintains new-unit efficiency indefinitely by removing corrosion accumulation. A spiral tool does the cleaning job.





Seamless Copper Tubes
Brass Headers Machined & Brazed

Why not insist that your next unit have a CLEANABLE water-cooled condenser? Especially since leading manufacturers, one after the other, are recognizing the "*must*" advantages of accessibility to cleaning and are equipping their units accordingly. They realize that initial purchase cost is no higher, and longer life and more economical performance are guaranteed. The CLEANABLE feature enables you to recover new-unit efficiency and thus maintain 100% economical operation indefinitely. In Halstead & Mitchell *Cleanable Condensers*, water tubes are accessible from both ends on all size models ⅓ through 25 ton—all water cooled, double tube, counter flow.

HM Halstead & Mitchell

Wholesalers in Principal Cities—*Write for descriptive literature*

OFFICES: BESSEMER BUILDING • PITTSBURGH 22, PA.

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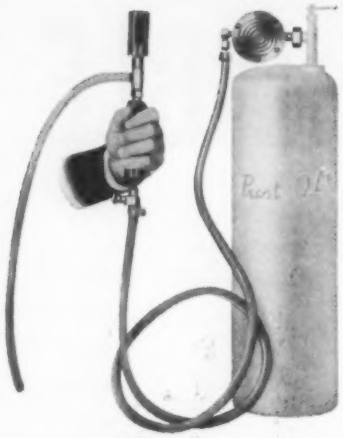
Circle No. 55 on Reader Service Card for more information

Prest-O-Lite HALIDE Leak Detector
Trade-Mark



Quick — Always ready for use. Lights instantly. Locates exact source of leak with a few sweeps of test hose.

Sure — Reacts instantly to smallest concentrations of all non-combustible halide refrigerant gases commonly used in domestic and industrial systems.

Simple — Easy to use anywhere. No delicate parts to get out of order.

Price (less tank) . . . **$14.50**

"Prest-O-Lite" is a registered trademark of Union Carbide and Carbon Corporation.

See your jobber or write us for further information. Linde Air Products Company, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y.

Order from your local Jobber

AUTO-LITE

TEMPERATURE INDICATORS

For your specific needs!

- ★ Precision-built indicators provide accurate temperature readings.
- ★ Low-cost protection . . . due to large, specialized production.
- ★ Wide selection of dial ranges to meet specific requirements.
- ★ 6 stock types available as shown.

MODEL "G"

Select the type that is best for your purpose. 3½" dial; evenly calibrated scales. From $18 up.

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION Dept. P-6
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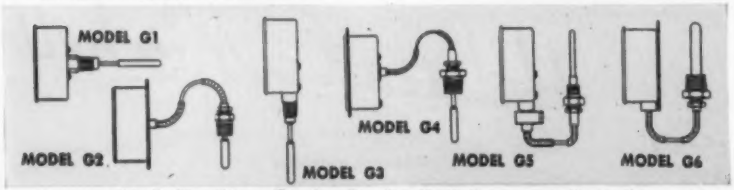
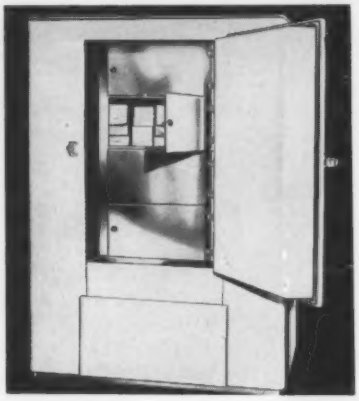


Circle No. 56 on Reader Service Card for more information

vidual doors. Three of these compartments have full size freezer plates. New principle of moisture sealing plus extra-heavy fiber glass insulation al-



lows freezer to maintain temperature of –30 F. Powered by Servel condensing unit. Exterior dimensions are 71½ inches high, 45 inches wide, and 28 inches deep.

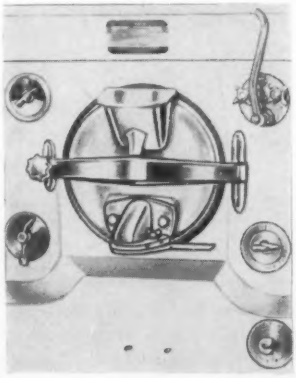
Circle No. 142 on Reader Service Card

Custard Spigot

Product: Sanitary draw-off spigot for frozen custard and other soft ice cream products.

Manufacturer: Mills Industries, Inc., Chicago, Ill.

Features: Short traverse, easy pull handle opens spigot and feeds



custard directly into cup. Easy and speedy to use from either side and using either right or left hand to operate spigot. Spigot fabricated of stainless steel and mirror polished for perfect sanitation. Draw-off gate is detachable in a few seconds for quick and complete cleaning.

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you get double protection against moisture with DRYSEAL

REFRIGERATION TUBE

● Moisture hasn't a chance against Dryseal. It's double crimped that's why. A special, precise, mechanical double-crimp seal made at each end of the tube when it is manufactured keeps the inside dry as a bone and free from dirt. And, because of the way the seal is made, the diameter of the tube does not change. This permits it to pass through any opening large enough for the tube itself.

Dryseal is easy as pie to handle. Being dead-soft it is easily bent with the hands. It is this same soft temper, and the ductility of the copper used, that makes Dryseal easy to flare for compression fittings without any danger of splitting. Economical tube sizes range from ⅛" to ¾" O.D.

And, for your greater convenience we have just recently brought out Dryseal in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical.

NOW in the NIFTY-50 one-coil carton!

REVERE 150TH YEAR OF SERVICE TO AMERICA

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

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Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.— Sales Offices in Principal Cities, Distributors Everywhere.

Circle No. 57 on Reader Service Card for more information

the temperature of the gas entering the suction of the second stage. By mixing thoroughly with the discharge from the low stage or first stage a considerable amount of the heat of compression is removed and a suction temperature approaching 65 F into the second stage is designed for and has been found desirable.

Due to the fact that the refrigerant at low temperature and low pressure is very thin, the first stage compressor must handle, for a given number of pounds of refrigerant circulated, a larger volume of gas than does the second stage, the suction inlet of which is at a higher pressure than the evaporator.

As a result, an approximate relationship between the first and second stages of a two stage compression set-up is approximately in the volumetric ratio of 3 to 1. That is, the volumetric displacement of the first stage compressor must be approximately three times that of the second stage. This results in an interstage pressure of such a value as to provide for almost equal compression ratios in both the stages of compression.

This is a condition which should be designed for and should be maintained when the system is in operation. Any deviation from this combination may result in abnormally high compression ratios on one stage with low compression ratios on the other stage and, since high compression ratios result in low volumetric efficiency, any benefit gained by compounding would then be nullified by losing the capacity of one or both of the machines.

Common Refrigerant Used

Among the advantages of multistage compression is the fact that a common refrigerant is used throughout, thus simplifying service and service parts necessary to be kept on hand for maintenance purposes. Another advantage is the flexibility of control which, in turn, results in more applications in various fields.

It is apparent that if the same refrigerant is used throughout the entire system, it is possible to operate the system as a single stage arrangement by merely by-passing the first stage of compression. Thus, the customer could use the system to produce temperatures down to –40 F as a simple single stage system and, should he desire temperatures below –40, he could merely start up the first stage of compression, closing the by-pass around it. This would provide for greater flexibility of temperature modulation as well as increased Btu removal capacity at relatively high back pressures.

No Temperature Overlap

Another advantage is that there is no temperature overlap between stages. This will be clearly explained later in a discussion of the temperature overlap problem in the cascade system, but it should be noted here that the discharge pressure of the first stage is equal to the intake pressure or suction pressure of the second stage and, since this is true, the overall compression effect from the low stage suction to the high stage compression or discharge is all effective toward producing refrigerating effect.

On the other side of the ledger, here are some of the disadvantages of the two and three stage compound systems.

For one thing, these systems are

This handsome pair of instruments never fails to win the man who wants the ultimate in testing gauges.

The four-scale "Serviceman"—ultimate achievement in testing thermometers.

This Type WP Marsh Electrimatic regulator is one of many covering all needs. Line also includes suction throttling valves, flow control valves, and the finest of solenoid valves.

That's the way "Bob" Shaw, Manager of Authorized Supply Co., Los Angeles, said it. You see him in the center pointing admiringly at a Marsh Electrimatic solenoid valve, and telling it to Frank Whitman (left) of the Marsh Instrument Co., as this photo was snapped. The man on the phone is "Bill" Irving, busy counter man for this respected jobbing firm.

"In this kind of business," says Mr. Shaw, "you've got to handle the kind of equipment that wins and holds friends; you've got to know it thoroughly; and you've got to have it right on hand." He points up this policy by carrying a full line of Marsh refrigeration equipment — testing instruments, pressure gauges, dial thermometers and Marsh-Electrimatic controls and valves of all types.

This southern California firm is typical of progressive wholesalers in every industrial trading center of the U. S. who would like to supply you with Marsh refrigeration instruments and controls. They want you to know the Marsh line; the quality line; the repeat order line. Some of the popular Marsh products are described here.

See your jobber

MARSH INSTRUMENT CO.
Sales affiliate of Jas. P. Marsh Corporation
Dept. P, Skokie, Ill.

MARSH *Refrigeration Instruments*

Circle No. 58 on Reader Service Card for more information

What the serviceman should know about "VIRGINIA" REFRIGERATION products

"EXTRA DRY ESOTOO"
(B.P. +14°F.)

"Extra Dry" is the refrigeration grade SO_2 that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

"V-METH-L" (B.P. −10.7°F.)

"Virginia" Methyl Chloride is made specifically for refrigeration use. Low moisture content, low acidity and narrow boiling range recommend "V-Meth-L" for the most exacting requirements.

"FREON" REFRIGERANTS

"FREON-11" Boiling Point 74.7°F.
"FREON-22" Boiling Point −41.4°F.
"FREON-12" Boiling Point −21.6°F.
"FREON-113" Boiling Point 117.6°F.
"FREON-114" Boiling Point 38.0°F.

Virginia Smelting Company is distributor for "Kinetic" Chemicals "Freon" Refrigerants.

TO CHARGE A SYSTEM, USE REFRIGERANTS THAT ARE

CONSISTENTLY PURE, CONSISTENTLY SURE

"ENAMELITE"®

the asphaltic mastic

- *for installing insulating materials*
- *as a surface coating*

Pour and mix—that's all there is to it. "Enamelite" is an asphaltic mastic that doesn't have to be heated. It sticks to any dry surface and makes an excellent vapor seal. It is excellent for application to corkboard, Fiberglas, Styrofoam, Celotex. "Enamelite" can also be used as a plaster finish on the exposed surface of insulation board when it is troweled on and applied in two coats. After the initial set, a perfectly smooth finish can be obtained by dashing water on it and troweling in one direction. There's nothing better for quick reconditioning jobs.

ASK YOUR WHOLESALER
OR WRITE
VIRGINIA SMELTING COMPANY
WEST NORFOLK, VIRGINIA
PHILADELPHIA • NEW YORK • BOSTON
CHICAGO • DETROIT • ATLANTA

VIRGINIA *Refrigerants*

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limited to the use of refrigerant with relatively low condensing pressures. Here again, as was explained under single stage refrigeration, Freon-12 and Freon-22 are commonly used, but are the only refrigerants that can be used whose condensing pressures are within the realm of everyday use of piping and fittings.

Another disadvantage in the two stage and three stage compound system is that the oil which is circulated with the refrigerant is subjected to extreme temperature and pressure conditions. It must be able to withstand the extremely high temperature of compression as well as the abuse within the crankcase of the two machines. It must have excellent lubricating qualities while hot and thin and, yet, must be able to pour freely and be wax-free at the low evaporator temperatures. An oil for this range of temperature application has yet to be satisfactorily developed by the petroleum industry, to the best of our knowledge.

Another disadvantage is that there has been very little data collected as far as expansion valve ratings are concerned under these conditions. By referring to the pressure-temperature charts of Freon-22, ordinary condensing pressures run in the neighborhood of 145 pounds gauge, and in order to produce –100 F air temperatures a refrigerant temperature within the evaporator of –110 F must be attained.

High Pressure Differential

This represents a gauge pressure in the evaporator or suction of the compressor of approximately 26½ inches. This represents a pressure difference across the expansion valve of approximately 158 pounds.

Ordinary ratings of expansion valve capacities are listed with pressure differences across the valve of 60 to 80 and possibly 100 pounds. Expansion valve ratings for higher pressure differences have not been definitely established.

As a result, the proper selection of expansion valves has been done only by trial and error and past experience and it is extremely difficult to properly size an expansion valve to a low temperature evaporator system when using two or three stage compression.

Condenser Is Key

Application of the cascade system is the concluding phase of this discussion. Typical piping arrangement for such a circuit is shown in Figure 4.

The cascade condenser is the key to the cascade set-up. This cascade condenser is a well-insulated heat exchanger where the one side is the evaporator and the other side is the condenser. The heat absorbed by condensing the low stage refrigerant is manifested in the evaporation of the high stage liquid in the evaporator. This heat exchange is accompanied by an approximately 15 degrees temperature difference between the two refrigerants.

In other words, in order to obtain heat throw from the condensing refrigerant to the evaporating refrigerant it is necessary to have a temperature difference, and this temperature difference has been established and is currently being designed at 10 to 15 F. It is this temperature overlap that is a lost refrigerating effect as far as the overall system is concerned.

Among the advantages of the use of cascade systems is that it permits com-

The *most frequently needed* V-Belt sizes are in this

Gilmer #355 V-Belt Assortment

It's a well-balanced assortment . . . 50 Gilmer V-Belts . . . a selection of the most popular sizes. In shop or truck, this minimum stock puts the right belt at your fingertips for hundreds of applications.

You can install Gilmer V-Belts with confidence . . . certain of complete customer satisfaction. They're ruggedly built for long, hard service. High strength rayon pulling cords—25% stronger than old style cotton cord—are processed for stretch control. Tough, double jackets withstand wear. Special inner construction assures cool running.

SERVICE AIDS WITH EACH GILMER ASSORTMENT

8-hook, sturdy metal Belt Rack for store, shop or truck.

Patented Gilmer Handimeter for correct, fast belt measuring.

Gilmer V-Belt Catalog—"America's Belt Bible."

Practical Gilmer Inventory Card to save stock-keeping work.

Window Display Card that tells customers to BUY IT HERE—NOW!

Gilmer BELTS

Ask your Gilmer Distributor about these other Gilmer refrigeration and air-conditioning service needs: Gilmer Tape (rubber and friction) . . . Gilmer Shock Pads . . . Gilmer Hose . . . Gilmer Packing.

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DIVISION OF UNITED STATES RUBBER COMPANY

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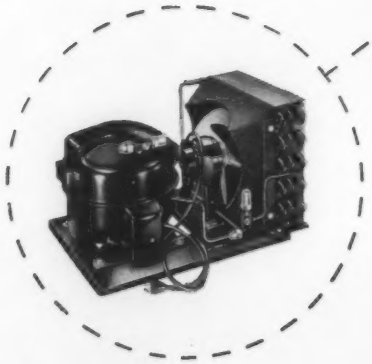
THAT KEEPS THOSE DRINKS SO REFRESHINGLY COOL



Always a cold bottle in the customer's hand . . . this is the one great objective of the beverage industry, for everything depends on *temperature at point of sale.*

When the refrigerating unit is out of order, sales stop as effectively as though the machines were empty.

That is why manufacturers of vending and dispensing beverage coolers need the quiet, dependable, efficient operation of Tecumseh Hermetics. That is why more than one-half of all beverage coolers made are equipped with Tecumseh. That is why bottlers insist on Tecumseh.

Yes, Tecumseh's popularity among manufacturers is assured because they know that *temperature at point of sale* is important, and a Tecumseh Hermetic is the best insurance that their beverage will always be at the ideal drinking temperature.

Let us send you the story about Tecumseh's Hermetics and how they may help you in designing that new beverage dispenser or vendor.

TECUMSEH
CHIEFTAIN

TECUMSEH PRODUCTS COMPANY
TECUMSEH, MICHIGAN
UNIVERSAL COOLER DIVISION: MARION, OHIO
EXPORT DEPARTMENT: 2111 WOODWARD AVE., DETROIT 1, MICH.

★ The world's largest producer of condensing units for the refrigeration industry. ★

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plete flexibility towards the use of different refrigerants, resulting in a better selection of the refrigerant to do the job required.

In other words, with the use of the low temperature for condensing the refrigerant within the cascade condenser it is possible to use a refrigerant whose ordinary condensing pressure, considering the use of water as the condensing medium, would be too high and would be prohibitive. If, however, such a refrigerant can be condensed at a reasonably low pressure at a low temperature, then it can be used safely, provided the system is designed for overpressure when the system is shut down for some time.

Another advantage is that each phase of the cascade system is identical to an ordinary single stage system and does not require any knowledge of specially designed compressors or valve plates, gaskets, etc., for its operation and maintenance.

Still another advantage is that each expansion valve is rated to near its standard design condition. Operating pressures and compression ratios are nearest normal as far as the valves are concerned and also as far as the condensing units are concerned.

Low Temperature Unlimited

There is very little difficulty with oil transfer since each system is self-contained and independent of each other. If each system is properly designed for oil return similar to any single stage system, the oil will be retained in its proper place. Oil separators are as necessary here as in the previously described system.

Finally, one of the greatest advantages is in the fact that low temperatures are completely unlimited. Any number of cascaded stages are possible by the use of an additional cascade condenser and an additional stage of compression operating with a similar or new refrigerant gas.

The only limitations that are imposed by extremely low temperatures are the selection of expansion valves to do the job required. On some extremely low temperature applications, such as for the production of –200 F or lower temperatures, it was found that expansion valves could not be used until they had been more properly designed and new power charges developed. In these cases, capillary tubes and expansion orifices were used with excellent results.

Among the disadvantages of the cascade system is that the overall efficiency is materially reduced due to the temperature overlap of 15 degrees in the cascade condenser. Another disadvantage is that the initial cost of the cascade condenser is an appreciable item, whereas in the previously described compound compression systems, there is no such expensive item.

Yet another disadvantage is the possibility of trouble in the system due to the use of extremely high pressure refrigerants. This results in the need for safety devices and protection against overpressure should the system be shut down and refrigerant gas allowed to expand to its normal

TEAMED UP FOR PROFITS

THE WINNING COMBINATION—Tap in the Yukon Walk-In Cooler in the basement —serve from the Paramount Tap Box at the bar for maximum convenience and minimum "muss and fuss".

The Paramount Direct Draw Tap Box eliminates coils and permits drawing of beer direct from walk-in cooler. Constructed of rust resistant metal throughout . . . . features removable front panel to fit under bar without cutting . . . . black baked enamel or stainless steel . . . . Model #800 S.S. (illustrated) . . . . other models available.

NEW
YUKON WALK-IN COOLER

Yukon Walk-In Cooler features tongue in groove construction for "leak proof" fit . . . . steel lag screws and steel pods for tight assembly . . . . asphalt application for securely sealed joints and seams. New corner construction (one piece angle type) and standard 2′ and 3′ prefabricated sections allow flexibility of size. Sturdily constructed large door equipped with heavy hardware.

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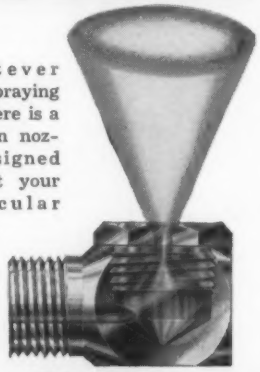
SPRAY NOZZLES

Whatever your spraying job, there is a Delavan nozzle designed to suit your particular needs.



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Tenney Unit Coolers are typical of Tenney's scientific design and ability to meet the needs of any type of installation, large or small. They look and are modern. They have the correct ratio of prime to secondary surface with a staggered arrangement and rifled interior for highest efficiency. They have added surface and assured defrost cycles plus "sweat" elimination and safe comfort cooling. They have extra capacity, variable direction of airflow, non-leak joints, positive fin to tube bond. And—they're easy to install. You can't go wrong with Tenney.

Remember—you always get more from Tenney. Literature and further information on request. ***Write to Tenney Engineering, Inc., Dep't. F, 26 Avenue B, Newark 5, New Jersey.***

No matter how you fit into the picture, you'll benefit with Tenney. Only Tenney brings you the advantages of advanced engineering, of manufacturing facilities that can handle any and every job, of a line that is complete in every detail.

Are you a dealer? You get the benefit of equipment that is engineered and built to win the confidence and approval of your customers—equipment that establishes your reputation for complete dependability.

Are you a jobber? When you handle the Tenney Line of refrigerating equipment, you handle a line unexcelled in variety—a line that enables you to meet every requirement of your customers, no matter how out-of-the-ordinary. And you operate under a franchise that assures you full profits plus the full support of an aggressive, promotion-conscious company.

Are you an engineer? You benefit from the cooperation of a staff of refrigerating engineers who do not only know all the angles, but what makes up the angles as well. You benefit by working with a team of specialists in designing and building equipment for non-routine installations.

TENNEY ENGINEERING INC. USA

Tenney

Manufacturers of Automatic Temperature, Humidity and Pressure Control Equipment 7155

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pressure at atmospheric temperatures.

Limitation of control also is a handicap. In a cascade system it is obvious that the refrigerant does not enter the expansion valve on the low stage system until it has been condensed to a liquid by the high stage machine. However, as soon as the liquid does seal the inlet to the expansion valve, it immediately produces an extremely low temperature.

In other words, at one instant there is no refrigerating effect whatsoever, and in the next instant, as soon as there is a liquid seal on the expansion valve, there is a tremendous refrigerating effect resulting in an extremely low temperature.

If it is desired to control a temperature somewhere between the ambient temperature and the temperature of the expanding refrigerant, it is obvious that it would be very difficult to stop the refrigerating effect before it had dropped as much as 40 to 50 degrees in one or two minutes.

➔ ***Third and final part of this series will appear next month. It will deal with operating and maintenance problems of low temperature systems and how best to handle them.***

ANOTHER PROSPECT . . .

Continued from page 34

and extending toward the rear of the store along the same wall is the hardware department.

Included in this back-bar type of fountain set-up is a 50-gallon ice cream storage cabinet and a refrigerated salad-sandwich unit, besides the usual equipment for preparing luncheons, soft drinks, and ice cream specialties. Nine stools are spotted along the 18-foot counter, which has a colorful top designed to create the maximum sales appeal in this show-window location.

To what extent has this modernized soda fountain installation paid off for the store? General manager Caylor will tell you that the new fountain more than doubled the store's sale of ice cream and sodas. The soda fountain pulls in other business, too, Caylor explains.

So important, in fact, has the soda fountain business become to the store's overall operating picture that the "Hardware" sign in the window now has been replaced by one reading "Ice Cream".

All of which just goes to prove that while the idea of sipping a soda amid paint cans and lawn mowers may sound funny to some, the enterprising commercial refrigeration dealer can turn many a store handling this type of merchandise into a first-rate customer for soda fountain and other commercial refrigeration equipment.

Are there merchants of this kind in your trading area? If the answer is "yes", tell them about the experience of the Bath General Store, and the sound sales principle of filling every available square foot of space with something that will pay off. You'll find it pays off for you, too!

AIR-CONDITIONED TEA

What is said to be the first—and only—completely air conditioned tea plant in the United States has been opened in Galveston, Tex., recently by Thomas J. Lipton, Inc. The unit was established to process teas arriving by water from the Far East for distribution in eight southern and southwestern states.

THE MACK

OIL SENTRY

Refrigeration Compressor Oil Charging Pump

A Handy Tool Designed for the Refrigeration Field!

Now you can charge any compressor with a measured amount of oil quickly and without spillage. The pump is calibrated for easy reading from 1 to 3 ounces per stroke. The nozzle tip has a spring loaded valve to keep out dirt and moisture. Its unique construction enables filling a crankcase from any angle. The pump plunger seals the top of the dispensing oil can by a neoprene gasket when in *down* position.

Air or water cannot enter at any time! A sturdy 4-foot neoprene hose with spring reinforcers at both pump and nozzle end assures extra long life and flexibility.

- Guards Against Lost Time
- Guards Against Dirt-Moisture
- Measures Oil With Precision
- Compact As A Gun
- Armed With Self Cleaning Nozzle
- Guards Against Spillage

List To The Trade $6.95

OIL SENTRY SERVES IN OTHER FIELDS WHERE OILING IS DIFFICULT
WASHING MACHINES—PRIMING OIL BURNERS—PLUS MANY OTHERS

THE NO. 1 REFRIGERATION SERVICE TOOL

MANUFACTURED BY
MACK PRODUCTS CO.
11 FREMONT ST., WINTHROP, MASS.

See Your Refrigeration Wholesaler
National Distributor
A. E. BORDEN CO., INC.
176 Brookline Ave., Boston 15, Mass.

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Over the COUNTER

Doing Business Today

TODAY, for the second time within a period of eight years, we are again faced with the problems of steering business through a complex, controlled economy, created by the defense program. Unfortunately, the refrigeration business uses materials classified as strategic—materials such as steel, copper, aluminum—all of which are in short supply due to defense needs. The big question arises as to the quantity of these metals which will be left over for the use of the civilian economy after military requirements have been satisfied.

Fortunately, however, refrigeration —particularly in its commercial and industrial applications—now is definitely recognized as essential, both for the defense effort and the civilian economy. Because of this fact, it appears almost certain that materials will continue to be made available for use in industrial and commercial refrigeration, as well as for the armed services and for repairs or maintenance. Drastic changes undoubtedly will occur, however, in the procurement, warehousing, and sale of refrigeration products as the defense program gains momentum.

Surplus stocks in the hands of manufacturers, distributors, wholesalers, dealers and others will undoubtedly rapidly decrease, in some instances entirely disappear. Orders will be largely filled from production schedules, not from inventory. In other words, we will probably find business being done on an allocation basis, with or without a priority system.

This is not new. It was done in 1943-44-45. It worked out well after the industry learned the procedure they were called upon to follow. If materials become extremely short in supply, a monthly or quarterly allocation undoubtedly will be used to help maintain a reasonable, equitable distribution of materials to all segments of the industry.

The lessons learned in the later years of World War II should help to simplify this method of distribution and make it quickly workable when needed. Attempts to hoard or stockpile surplus materials for future sale already is next to impossible. It is also illegal, where excessive inventories result, under the Defense Production Act of 1950.

In 1942, at the beginning of the first emergency period, little recognition was given to the essentiality of refrigeration materials. Much hard work was necessary to convince those in charge of distribution of materials at that time that refrigeration was essential for the preservation and conservation of food supplies, and also for production and industrial uses.

Finally, however, the essential need for refrigeration materials became

MIAMI WHOLESALER'S NEW HEADQUARTERS STORE

PLENTY OF PARKING SPACE for customers is an important feature of the new location of Graves Refrigeration Co., Miami, Fla. An enclosed truck dock facilitates loading and unloading of heavy equipment in the building at 560 N.W. 29th St. to which this supplies wholesaling firm recently moved its headquarters.

PLENTY OF DISPLAY SPACE for condensing units and other large pieces of equipment is provided on the store's sales floor. In this picture, taken during the "open house" with which the firm celebrated its move to the new quarters, "boss man" Jack Graves is standing third from the left.

recognized, and from that time on materials were made available under a priority system which worked out generally satisfactorily.

Such recognition and assistance will be of great help in meeting the needs of the industry. However, it must be realized that this would not mean that materials will necessarily be made available on short notice, although it should result in materials being made available when essential with only a reasonably short delay after placing an order.

Every business man faces an entirely new set of rules for the future conduct of his business. Selling merchandise will cease to be of paramount importance in the foreseeable future. Price cutting, chiseling, and other annoying practices should largely disappear from the business picture. Collection of accounts should represent little or no problem.

The big job ahead will be procurement of merchandise; careful, efficient, management; a farsighted, forward looking, viewpoint. Considerable planning also will be needed, with sound operating policies for guiding business conduct.

STANDARD BRASS OPENS BRANCH IN LOUISIANA

Standard Brass & Mfg. Co., refrigeration supplies wholesaler with several branches in the Texas and Louisiana coastal area, has opened this new store at Lafayette, La., to handle a complete stock of refrigeration and plumbing supplies within a radius of 50 miles. Posing in front of the new branch are (in the usual order): Harold Cummings, store manager; Don Cornell, manager of the parent branch in New Orleans; and F. C. Williams, inside salesman for the Lafayette store.

PENN HANDLES PROMOTION FOR A. E. BORDEN CO.

A. E. Borden Co., Inc., Boston, Mass., wholesaler and distributor of refrigeration equipment and supplies, has announced that Charles D. Penn has been added to its staff to handle sales promotion and advertising.

Penn has an educational background in display at Bliss Display School, in advertising and sales at Ad Club of New York, and in sales management at Boston University.

BUY FROM YOUR REFRIGERATION WHOLESALER

Serving America's Finest Food Stores!

There's an interesting story for dealers in "Bally MEANS BIG BUSINESS". Copies available.

OPEN STYLE
Double Deck Case

...ONE OF 62 DIFFERENT BALLY MODELS and SIZES

Bally

REFRIGERATED DISPLAY CASES

Bally Case and Cooler Co., Bally, Pa.

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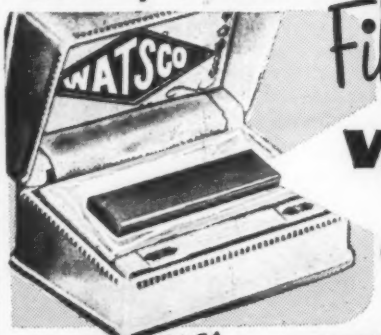
Gem of Precision

NEW Fiber-Loy VANES For All COLDSPOT UNITS



UNBREAKABLE! QUIET IN OPERATION! EASILY FITTED!

We guarantee that the FIBER-LOY vanes will outlive the units in which they are installed, or your money will be refunded.

SERVICE ENGINEERS — get a lifetime of wear in these amazing FIBER-LOY vanes for Coldspot units. Made of fiber impregnated with thermo-setting plastic, they are extremely tough, and more durable than any other known material used for this purpose. FIBER-LOY will resist acids, moisture and corrosion.

Now Available at your Jobber at NO INCREASE IN PRICE

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FREE CATALOG

Wagner Tool & Supply Corp.,
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REFRIGERATION PARTS & TOOLS

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NOW YOU CAN

DEMAND PROOF

THAT YOUR FOOD STAYED FROZEN!

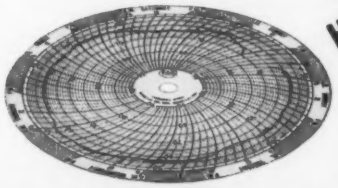
A single lawsuit can wipe out the profits from a lot of frozen food business. Why take chances?

Now you can have *proof* that shipments have stayed frozen from freezing through storage, shipment, delivery—every inch of the way. The compact TAGliabue Miniature Recorder rides right with the load, continuously charting temperatures day after day. It withstands jolts, jars, vibration; needs no connection to any power supply.

Because it helps them settle disputes without recourse to litigation, shippers and carriers alike are turning to the TAG Miniature Recorder for proof of continuous refrigeration. The trend is growing—save yourself future expense by joining the leaders *now!*

HERE'S YOUR WITNESS

that travels with your load, needing no power supply or shockproof mounting: the TAG Miniature Recorder.



HERE'S YOUR EVIDENCE

that no one can dispute: the crisp, clean chart drawn for as long as a week by the tamperproof TAG Miniature Recorder.

TAG

TAGLIABUE INSTRUMENTS DIVISION

Weston Electrical Instrument Corporation

614 Frelinghuysen Avenue, Newark 5, New Jersey

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TEXACO CAPELLA OIL

COMPRESSORS THRIVE ON IT— SO WILL YOUR BUSINESS

Growing lists of satisfied customers everywhere show you'll do a bigger compressor oil business with *Texaco Capella Oils*. These fine oils build repeat sales and bring in new business because they are especially refined for refrigerating compressor lubrication . . . assure trouble-free performance . . . more refrigeration per dollar . . . lower maintenance costs.

You can't go wrong with *Texaco Capella Oils*. Approved by leading compressor manufacturers, they are available in every needed viscosity in 1-quart, 1-gallon and 5-gallon containers. The Texas Company, 135 E. 42nd Street, New York 17, N.Y.

TEXACO Capella Oils

FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT

TEXACO

TUNE IN . . . TEXACO STAR THEATER starring **MILTON BERLE** on television every Tuesday night. See newspaper for time and station.

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THE PRACTICAL REFRIGERATION APPLICATIONS MANUAL

By Harold Smith

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

PROBLEM

"I HAVE a customer who wishes to build a frozen meat storage to maintain zero temperature. This building will be built with all sides exposed. It is to be 15 ft. x 30 ft. The entire amount of the building to be used as mentioned above.

"I would appreciate it if you could inform me of the best type of material, the thickness of the walls, insulation, etc., also size of air cooled or water cooled compressor. This building will be on the ground floor with a concrete slab.

"Any information you can give me to assist me in the construction and the installation of the building and equipment will be very hapyful".

"P. S. The ceiling height will be 8 ft".

SOLUTION

WHILE you describe a 30 x 15-foot building for frozen meat storage at a temperature of zero F, you have not indicated whether this entire amount of space is to be used for actual storage or whether other facilities are to be included.

The usual plans for an installation of this kind provide, in addition to the storage space, a freezer room, a precooler, a process room, a machinery room, and a small office or a vestibule entrance to the cooler. Should these additional rooms be included in a 30 x 15-foot building there would be only a small space left for storage.

We shall therefore assume that precooling and processing will be done at another location, so that maximum space will be available for freezing and storage. It will be necessary, however, to provide space for the refrigeration machinery either inside the building or in an annex attached to the building.

You also failed to provide us with information regarding the quantity of meat to be stored. If freezing is to be done, it is important to know the number of pounds to be frozen a day or week. Also we should know what method you wish to use for storage, whether in bulk or in lockers. We really should have all this information to give you a complete outline for your requirements.

Lacking this data, we are assuming that the 30 x 15-foot building is for bulk storage with provision for freezing facilities plus a small machinery room and an entrance vestibule. A space of at least 6 x 15 feet would be required for the machinery room and entrance vestibule, leaving a freezer and storage space of 24 x 15. The outside dimensions of the building should be approximately 34 x 19.

We would recommend use of cement block wall construction on cement footings at least 24 inches in the ground. The outside walls should be plastered with moisture proof cement, the inside wall painted with hot asphalt.

The floor should be built up from solid ground as follows: 4 inches reinforced concrete, two layers of 3-inch corkboard covered with hot asphalt and joints lapped, and 4 inches of concrete reinforced on top. Several drains should be provided in the floor with slopes to the drain from all directions. The drains should be connected to a sewer or cesspool.

The walls should be insulated with corkboard hot dipped in asphalt. At least two layers of 4-inch thick corkboard should be used. If you prefer to use a wood fibre or mineral wool type of insulation, at least 10 inches, properly packed, should be used.

Should cork be used, the inside walls can be plastered over the cork. If packed insulation is used, fir sheeting can be used as an inside finish. Wood should be well varnished with good water proof varnish.

Two layers of 3-inch asphalt cork should be used in the ceiling or at least 8 inches of packed insulation. It is very necessary to have an air space between the ceiling and the roof if the roof is exposed to the sun, otherwise the heat load at the ceiling would be extremely heavy.

We suggest the use of plate coils within the storage room and these should be in groups of three or four plates each, well distributed throughout the ceiling area. Plates may also be set up at some point within the storage space in a horizontal tier to be used as shelves for freezing.

Without any information regarding the quantity of meat to be frozen and stored we would suggest that a 2 or 3-hp condensing unit would be the minimum requirement for this installation.

We realize our information is somewhat vague, but it is impossible for us to give more specific recommendations unless we know full specifications of room sizes, freezing rate, and storage turnover.

ANDERSEN HAS SWEDEN IN COOK COUNTY, ILL.

The Sweden Freezer Mfg. Co. has announced the appointment of Andersen Refrigeration & Heating Company, Oak Lawn, Ill., as a wholesaler of Sweden freezers in the Cook County area. Andersen Refrigeration & Heating offers a complete sales and service organization. The Andersen organization is headed by Charles Andersen, a member of ASRE and the Refrigeration & Air Conditioning Contractors of Chicago. Other officials are R. W. Stevenson and Don V. Beagle.

NEW SERVEL OUTLET IN NEW YORK CITY AREA

Refrigeration Parts Co., Brooklyn, N. Y., has been appointed wholesale distributor of Servel commercial electric refrigeration products in the five boroughs of New York and Nassau and Suffolk counties. James (Hans) White is president of the company, which will handle Servel condensing units and parts. A complete line of units and parts will be stocked by Refrigeration Parts, which is discontinuing all retail activities.

BUY FROM YOUR REFRIGERATION WHOLESALER

Circle No. 70 on Reader Service Card for more information

"WE MAKE IT!"
- THE RIGHT DISPLAY
- AT THE RIGHT PRICE
- FOR EVERY FOOD REFRIGERATION NEED

Federal the complete line

ILLUSTRATED, SELF-SERVE FRESH MEAT, STANDARD LENGTH, EASILY ADAPTED TO CONTINUOUS.

We are experienced manufacturers of displays and refrigerators . . . for every food refrigeration need.

The FEDERAL LINE is a quality line . . . measuring up, in every detail, to highest standards. There are over 50 models, and our representatives invite your inquiries.

Representatives in all principal cities.

FEDERAL REFRIGERATOR MANUFACTURING CO.
WAUKESHA, WISCONSIN

Federal REFRIGERATORS

LOOK TO HOTELS FOR SALES . . .

Continued from page 53

the condensing unit in accordance with temperature requirements of that particular room. For satisfactory operation, a liquid line solenoid is connected to the load side of the motor to stop flow of the refrigerant when the compressor shuts off.

Where one condensing unit serves two or more loads, each room is provided with a liquid line solenoid valve as well as a thermostat, thus enabling each cooler to call for refrigeration independently of the others on the circuit. Automatic operation of the condensing units is accomplished by means of a suction pressure switch.

The entire modernization project was handled by Hayes Bros., Inc., local refrigeration contracting firm.

Manager of Hayes' refrigeration division, W. F. Freije, reports that no special sales effort was required in getting the customer to sign the order.

The sale actually was sort of a "cooperative" affair, with the hotel management submitting an overall plan to the Hayes organization, whose engineers did the rest.

Eloquent testimonial to the wisdom of the management's foresight in recognizing the potential operating economies of the revamped refrigeration system is this final fact supplied by the hotel's chief engineer, Ralph Saffel: Figures have shown that on the basis of lower operating costs alone the new equipment will completely pay for itself within two years.

the Dean Says—

NOW . . . BUY YOUR PLATES IN THE SIZES YOU NEED!

ZINC METALLIZED STEEL, STAINLESS STEEL AND OTHER METALS. CYLINDERS, U's, ANGLES, TANKS, ETC.

DEAN "JOB TAILORED"

DEAN COLD PLATES for
FROSTED FOOD DISPLAY CABINETS
ICE CREAM CABINETS
SODA FOUNTAINS
FARM MILK COOLERS
FARM FREEZERS
LIQUID COOLERS
WINDOW DISPLAYS
FOOD COUNTERS
LOW TEMPERATURE TEST ROOMS
REFRIGERATED TRANSPORTATION
Plates also available for Baudelot-type Coolers

EVAPORATOR PLATES

Now you can get your plates exactly as you want them . . . any size . . . any shape . . . any metal! Think what this means in time saved . . . MONEY SAVED! Before you buy another plate, get the facts on DEAN "job tailored" cold plates. It will be well worth your while! Ask your jobber, or write

DEAN PRODUCTS, INC.
1042 Dean St., Brooklyn 16, N.Y.
STerling 9-5400
Write for Technical Data Book

Circle No. 71 on Reader Service Card for more information

1ST CHOICE FOR TOUCH-UP WORK
SPRAYS RIGHT FROM THE CAN!

Use Spray-O-Namel for touching up:
- Refrigerators
- Frozen Food Display Cases
- Air Conditioning Equipment

for painting:
- Louvers
- Ducts
- Vents
- Piping

in hard-to-get-at spots.

It's quick, easy and economical with Spray-O-Namel. Professional results assured. No brush, no mixing, no muss, no waste. Every drop of Spray-O-Namel is expelled from the pressurized can in a fine spray. Removable Presto-matic spray head eliminates clogging.

20 colors, largest selection of colors in spray painting field. Includes white, aluminum and clear plastic. Sold through refrigeration wholesalers. Write direct for brochures, color chart, etc. We manufacture a complete line of paint products.

Jobbers: Inquiries invited. We have a good deal for you.

Manufacturers: Ask about Spray-O-Namel in your particular color specification.

ILLINOIS BRONZE POWDER CO.
2023 So. Clark St. ILLBRONZE Chicago 16

Circle No. 72 on Reader Service Card for more information

all three agreed it would provide four definite savings

Immediately after this small Motorpump was used for recirculating water in air conditioning systems all agreed that at last they had a different pump with lower hp that would do the work of ordinary pumps of higher hp. Yes, the man who bought the air conditioning unit on which the pump was installed, the contractor who put in the system and the I-R engineer who helped design the pump found that the Motorpump *offers* four definite savings.

1. **Saving in *first* cost**
2. **Saving in weight and space**
3. **Saving in installation costs**
4. **Saving in power costs**

This remarkable Motorpump is just one of the results of 90 years of Ingersoll-Rand research and experience. The Motorpump has proved itself to be higher in efficiency and reliability when compared *size* for *size* with *any* other type pump used on air conditioning systems today!

Knowing this, you can't honestly afford to pass up the savings this Motorpump offers. Certainly, it's worth your investigation. For facts and figures, contact your nearest I-R distributor or representative. Meantime, write direct for this booklet, "A Picture of Improved Pumps for Air Conditioning" Ingersoll-Rand Company, 11 Broadway, New York 4, New York.

646-9

Ingersoll-Rand

90 years of BIG PUMP know-how packed into *small* pumps for air conditioning applications

MOTORPUMP

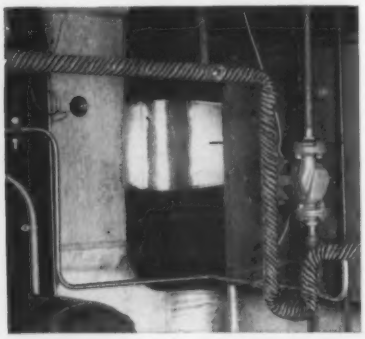
Circle No. 73 on Reader Service Card for more information

Positively Controls

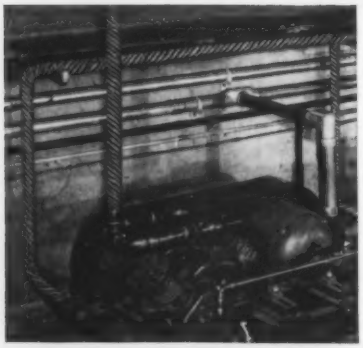
CONDENSATION DRIP

Prevents rust and corrosion, thus prolonging pipe life.

Just wrap cork-filled NoDrip Tape around cold water pipes, suction lines and joints running from refrigerating machines to condensers. Also used on refrigerant lines in air conditioning systems and on cold water pipes in basements.



NoDrip Tape is effective immediately. It can be painted. Clean and easy to put on, without tools, brads, etc.



CONTRACTORS: Include NoDrip Tape protection in your estimates, not only to stop dripping, but for the sake of good appearance on finished installations.

Roll covers about 10 feet of ½" pipe. $1.69 list. Higher west of Rockies and Canada.

Order through your supply house or write for information.

J. W. MORTELL CO

Technical Coatings Since 1895

553 Burch St. Kankakee, Ill.

Circle No. 74 on Reader Service Card

CHILLED WATER . . .

Continued from page 33

When circulating systems are used, the heat input of the circulating pumps (746 watts × hp × 3.4 = Btu hrs) and the line loss of the circulating line (allow approx. 3 gal/hr/100 lineal ft of 1" pipe covered with ice water thickness cork insulation) must be added to the hourly requirement. When dining rooms are on several floors, circulating systems are preferable.

Soda Fountains—In recent years soda fountains have been enlarged to such an extent that today they have taken their place as a leader in the "counter-table" type of eating places (glass service). Soda fountain manufacturers have been hard pressed to keep pace with the "sweet" water load with conventional fractional horsepower units.

The severe peak-load requirements caused by the expanded soda fountain trade can best be met by installing one or more storage type coolers in the basement to act as pre-cooler-boosters to the over-worked built-in cooler that is conventionally furnished with soda fountains. Practice has proved that one or more 10 or 25 gallon storage coolers (one for each 10 seats) suitably spotted and connected in multiple to one machine, can successfully meet peak load requirements and can also furnish pre-cooled water to the carbonators.

Office-Factory-Cafeteria—The problem facing all office and factory mass "eating places" is quick turnover. Almost invariably such places are of the cafeteria type and are often forced to operate in shifts allowing as little as 20-30 minutes per eating period. Large "storage" of chilled water is vital to successful operation.

Drinking water stations should be kept away from serving counters to avoid congestion. "Speed-up" of personnel is accomplished by multiple drinking stations. Due to scattered location of drinking stations they are generally of the self-contained type with water-cooled condensing units and with multiple fixtures.

Equipping the back of the cooler with fixtures, the same as the front, giving due consideration to the increased capacity requirement is one way of speeding up the traffic in mass eating places. Such installations are often referred to as "island" stations and adequate space must be allowed.

Specifications—When writing specifications, the following must be covered:

a. Purpose, location and quantity of equipment required.

b. Capacity required.

a. Storage

b. Gals/hr reduced from 80° to 45°

c. Type of equipment i.e. (cabinet self-contained) See figures.

d. Finish: Stainless steel or duco.

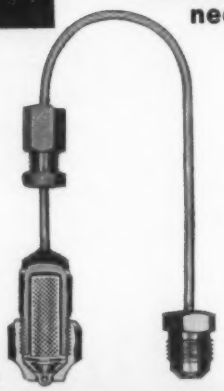
e. Shelves for glasses—location and description.

f. Type of fixtures, location and quantity.

g. Make, model, horsepower, current and Btu capacity at 26° suction temperature of condensing unit desired.

1 ALLIN CAPILLARY TUBE

serves MANY needs!



Adjustable!

SEE YOUR JOBBER

ALLIN MANUFACTURING COMPANY

1153 West Grand Ave., Chicago 22, Ill.

Circle No. 75 on Reader Service Card

SWEDEN APPOINTS

Sweden Freezer Mfg. Co., Seattle, has announced the appointment of Pinski Brothers, Inc., as authorized outlet for Sweden freezers in Great Falls, Mont., and of Lavender's Refrigeration as authorized dealer in the central Washington State area, with headquarters in Wenatchee.

ABOUT PEOPLE . . .

Continued from page 38

was named vice president in charge of production; Lee Beets, secretary and credit manager; W. C. Smith, sales manager, distributor sales division; and H. B. Vogt continues as sales manager, national accounts division. Alex Thomas, Jr. was appointed treasurer; George Hansen, assistant treasurer in charge of purchases, and Walter Bullard, assistant treasurer in charge of traffic.

●

Paul M. Hooven, Jr. has been appointed sales engineer, defense products sales, Air Conditioning Department, General Electric Co., it was announced recently by Charles J. Rigby, supervisor, defense products sales. Hooven will represent the company in Washington, D. C. Hooven joined General Electric in 1938 as heating specialist in the oil burner division. He served in the positions of World War II Washington representative, eastern field supervisor, and manager of the southeastern district with headquarters in Atlanta, respectively, for the Air Conditioning Department.

●

H. Blake Thomas, vice president in charge of sales for McQuay, Inc., Minneapolis, has been elected to the board of directors of the company. Thomas' association with McQuay dates back to 1930. He served successively as assistant sales manager and general sales manager before his appointment as vice president Jan. 1, 1948.

●

Harold L. Zimmer has been appointed advertising manager of Curtis Mfg. Co., St. Louis. Zimmer formerly was with the St. Louis *Star-Times* and has a varied background in advertising, selling and merchandising.

BUY FROM YOUR REFRIGERATION WHOLESALER

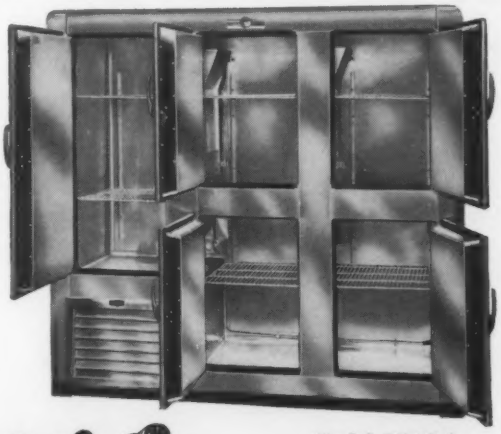
VIMCO

Stainless Steel Refrigeration

Built for Service

Vimco means quality! Advanced engineering plus skilled craftsmanship make Vimco the choice for top performance — top satisfaction.

Model DRS-70-3
Dough Retarder or Salad Refrigerator
Available from 42 to 98 cu. ft.
Remote and Self-Contained



Model RS-60-S
Available from 20 to 65 cu. ft.
Remote and Self-Contained

Pioneers of Stainless Steel Refrigerated Cases
For complete information write for catalog

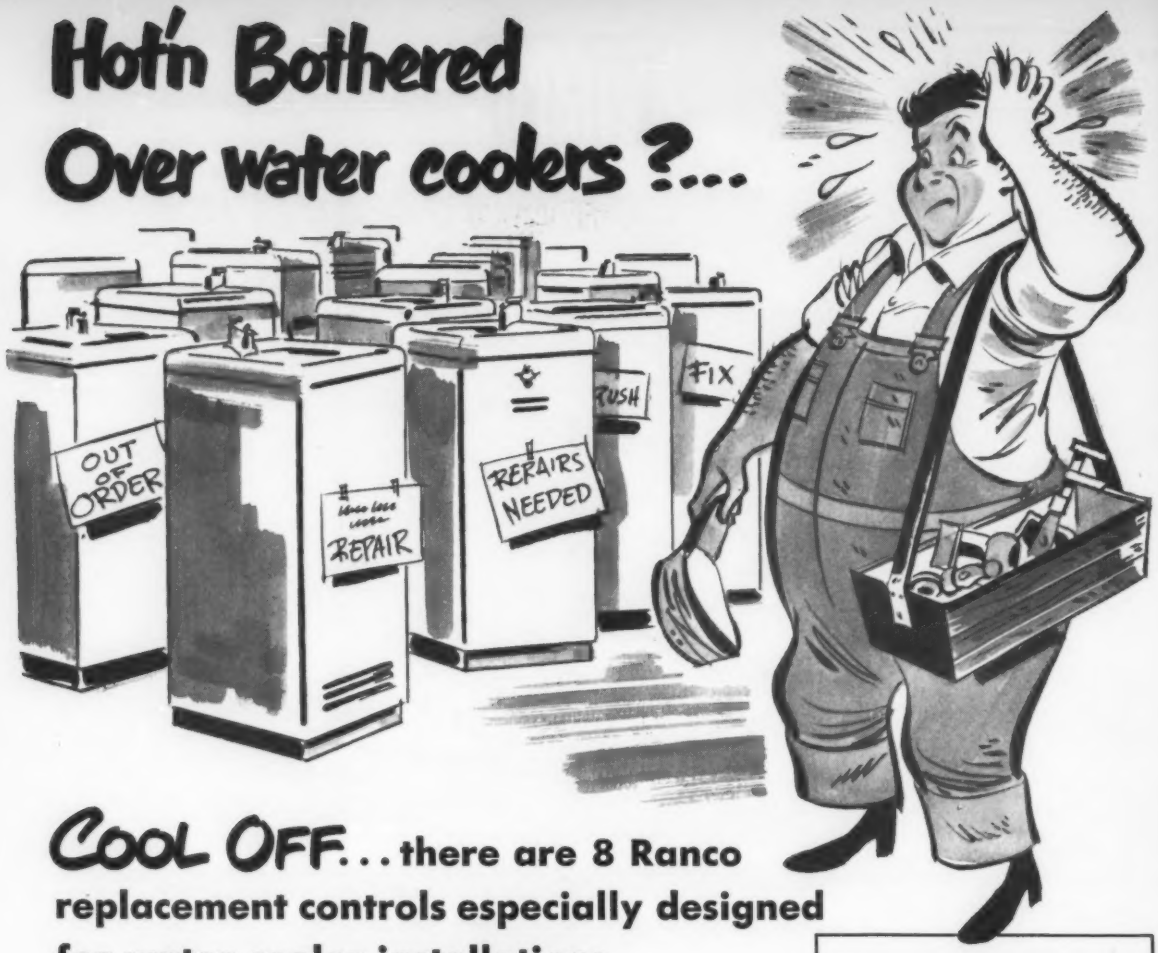
VICTORY METAL MANUFACTURING CORP.
1300 SOUTH FRONT ST.
PHILADELPHIA 47, PA.

VIMCO

DISTRIBUTORS IN ALL PRINCIPAL CITIES

Circle No. 76 on Reader Service Card for more information

Hot'n Bothered Over water coolers ?...

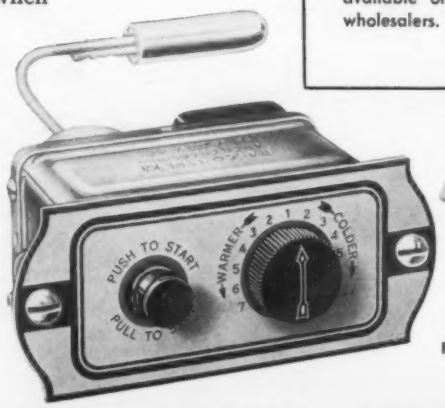


COOL OFF... there are 8 Ranco replacement controls especially designed for water cooler installations

Don't worry about finding the right replacement for Water Coolers. *Ranco makes it!* In fact, there are eight precision-built models designed for accuracy and trouble-free performance. Ranco controls put the "cool" in cooler . . . eliminate costly call-backs, assure customer satisfaction, and provide greater profits. Why shop all over town when *one stop* at your Ranco wholesaler's will do the trick. See him today and *replace it right* with Ranco.

RANCO REPLACEMENT REFERENCE No. 1244

This valuable bulletin includes alphabetical listing of all refrigeration manufacturers, trade names, and Ranco Replacement Control code number. Copies available only through Ranco wholesalers.



RANCO TYPE KOD 136 CONTROL FOR WATER COOLERS

RANCO CONTROLS

Ranco Inc.
COLUMBUS 1, OHIO

WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

Circle No. 77 on Reader Service Card for more information

HERE'S HOW!

Edited by
Warren W. Farr

Don't Assume Safety

The following message, written by R. L. Dillard, appeared in a recent issue of *The Headpressure*, news letter of the District of Columbia chapter of RSES. Because it contains information of importance to all refrigeration service men, we are reprinting it here:

"The longer we work at our various trades, the nearer we approach the all-too-true adage 'familiarity breeds contempt'.

"All too frequently we hear of an automobile mechanic, for example, being injured when a jack failure permits an automobile to fall on him, when the insertion of a lock pin might have prevented the accident.

"The refrigeration service engineer is also ready prey for accident listings as he goes about his work from day to day, particularly if he permits himself to become 'contemptuously familiar with dangerous practices', or if he persists in skating on the thin ice of 'it's probably o.k., let's not bother to check'.

"A recent case of a mechanic injured in disassembling a soldered joint liquid line is a good example of still another way to invite injury, and that is to fail to realize that sometimes *even the simplest service operation may create conditions dangerous to the mechanic himself.*

"A leak had developed in a joint in a ⅞ o.d. liquid line carrying F-12. The defective joint was located between the receiver shut-off valve and a solenoid valve at the coil. The receiver valve was closed and the compressor operated until the suction pressure went nearly to zero, with the solenoid valve open to permit evacuation of the liquid line. At this point the suction s.o.v. was closed and the compressor was shut down, closing the solenoid. Intending to prevent the build-up of pressure, the suction line flange was loosened at the compressor.

"The mechanic then proceeded to apply a torch to the defective fitting, *assuming* that no pressure existed in the line. Just as the solder reached the fluid state, the joint separated with violent force, and a section of the line struck the mechanic in the stomach, inflicting injury which required extensive hospitialization.

"How could such a condition arise? He had closed the receiver valve, pumped the line and coil out and broken the suction line. But— he had not considered the possibility that the receiver valve might not hold tight— and it didn't! The solenoid valve *was* tight, though, and the section of line he was applying heat to became a dangerous weapon as it approached, or possibly exceeded, the receiver pressure.

"What do we learn from this?

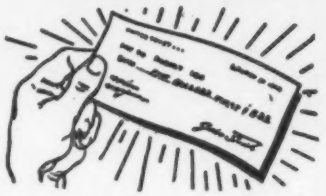
"1. Technically—we learn to always break a line before applying heat, by making a hacksaw cut, by drilling, by opening a valve which we *know* affords relief, etc.

"2. Specifically — w h e r e your safety or the safety of others is involved, we learn *to assume nothing.*

"3. Generally—we learn to take time to *think* of the *safe* way to do every job.

"That is, we learn these things if we have the intelligence to profit by experience!"

WANT TO EARN $5?



You don't have to be a writer or a literary genius! Just jot down some of the shortcuts you've developed in your maintenance or installation work and send them to HERE'S HOW EDITOR, COMMERCIAL REFRIGERATION AND AIR CONDITIONING. Your $5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

I do it this way...

A BELLOWS seal may be tested after lapping in the following manner:

Compress the bellows between a piece of plate glass and the fleshy part of the palm of your hand. The seal nose should be on the glass, and both the glass and the palm of your hand should be oiled.

A cracked bellows will hold no suction.

L. S. Weatherly, Oakland, Calif.

I do it this way...

TO clean a clogged up expansion valve strainer or similar strainer, first remove the strainer. Then insert the small tip of a pressure oil can as far as you can get it into the strainer and force oil through the strainer until it is clean. I find that this will clear the most tightly clogged strainer very quickly and leave it perfectly clean.

G. T. Ward, Hamilton, N. C.

Thought for Today

Service departments during the last war made a major contribution to business progress. The personnel of these departments maintained the one

Circle No. 78 on Reader Service Card

odorless
Jarrow...
Refrigerator Door Gaskets Are Made From Crude Rubber
Always Demand These Quality Gaskets
JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

uninterrupted customer contact. Sales departments were quickly liquidated or turned to other activities.

New equipment, except for high priority use, simply was not available. There was no use trying to sell a product that you couldn't possibly deliver. Your advertising could maintain all the sales contact you needed.

But service was another problem. The only answer to the unavailability of new equipment was to keep old equipment operating. For how long? No one knew.

The full responsibility for that job rested on the serviceman. Equipment somehow was kept operating, and out of these conditions came a situation that few realized at the time would or could be a potent factor in postwar distribution.

For the first time, in many cases, the customer fully realized what a service department—a serviceman—really was. It was during those days that many a consumer, with the help of the service department, learned how well the manufacturer built his equipment.

Yes, that was during the last war. What about today?

PLAY IT SAFE!

DON'T LET A SHORT SHORTEN YOUR LIFE

By George J. Schuld
International Safety Director, RSES

THE thickest volume in our accident library is filled from cover to cover with accounts of servicemen who have been electrocuted while using portable electric tools.

These accounts point up the fact that, careless as it may seem, many servicemen take a drill or a buffer or some other electric tool out of the shop for use on a job and then forget to ground the tool. Negligence of this sort makes it possible for an unknown short in the tool or its wiring to assume the role of executioner—and another serviceman becomes just a fatal accident statistic.

To preclude such lethal possibilities, recommended safety procedure calls for the use of a 20 or 30-foot length of stranded wire with a clip on each end. One of these clips should be clamped on the tool and the other on the water pipe or grounded circuit.

Also, a small board—say a piece about 12 by 18 inches—can be carried along for the serviceman to stand on while using the tool.

***Remember:* "The extra minute you take may prevent a mistake."**

Did You Know That . . .

. . . you should check motors for proper rotation when they come back from repair shops? Improper rotation invariably ruins shaft seals. Wrong rotation also can account for high speed pressures due to the fact that a reversed fan blade does no work at all as far as blowing or drawing air is concerned.

Question Corner

Question: Is there any method of correcting squeaks from V-belts besides replacing the belt?

Answer: Squeaks on V-belts are usually due to glazing of the side walls of the belt. With the unit running, take a file and remove this glaze from the side walls, turn the belt around so that it runs in the opposite direction, and apply a small quantity of glycerine to the belt walls.

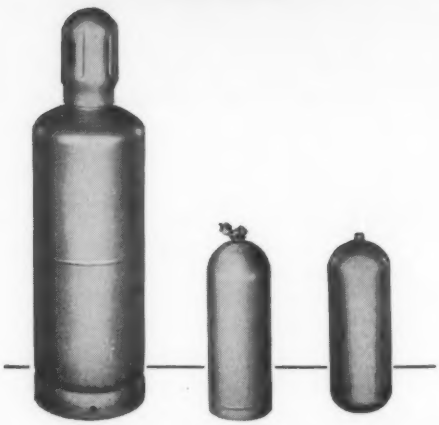
BUY FROM YOUR REFRIGERATION WHOLESALER

TAC does what no other tool can do!
AT LAST! AN OPEN-END RATCHET WRENCH—the world's first true *universal* wrench. Never in the history of refrigeration and air conditioning servicing has any tool been developed to equal the ability of this patented design for connections on tubing, rods, piping, conduit, studs, etc. 64 socket sizes from 3/8" to 4". TAC speeds *all* of your wrenching jobs.
makers of advanced tools for industry
TAC
TAC is the registered trademark of
TUBING APPLIANCE CO.
7112 South Victoria • 10321 Anza Ave. • Los Angeles, Calif.

Circle No. 79 on Reader Service Card for more information

SPECIFY Prest-O-Lite Trade-Mark CYLINDERS

For Refrigerant Gases Because You Get...



1 Uniform Wall Thickness — Unusually close tolerances in wall thickness assure you a superior cylinder.

2 Long Life — Years of extra service and added protection against denting, piercing, corrosion, and pitting result from the thicker walls and rugged construction.

3 Light Weight — You cut transportation costs because there are no extra-thick sections which only add weight without adding strength.

4 Maximum Safety — All cylinders are tested for leakage with dry air, in addition to standard safety tests.

5 Benefit of Years of Experience — Unsurpassed design and production come from more than 35 years of experience and skill in the development, manufacture and use of compressed gas cylinders.

6 More Than Code Requirements — You know PREST-O-LITE cylinders will never let you down because they're made, tested, and inspected not only in accordance with I.C.C. Specifications but also undergo many rigid tests far beyond these requirements.

PREST-O-LITE cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb., or special sizes and designs quickly made to your specifications.

You save money in the long run when you insist on the best cylinders. Fill in the coupon below and mail it today for more information about PREST-O-LITE cylinders that will meet *your* needs.

LINDE AIR PRODUCTS COMPANY
A DIVISION OF UNION CARBIDE AND CARBON CORPORATION
30 East 42nd Street UCC New York 17, N. Y.
Offices in Other Principal Cities
In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

The term "Prest-O-Lite" is a registered trademark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY
30 East 42nd Street
New York 17, N. Y.

R-13

Please send full information about PREST-O-LITE cylinders for refrigerant gases.

NAME .....

COMPANY .....

ADDRESS .....

MAIL THIS COUPON NOW!

Circle No. 80 on Reader Service Card for more information

MODERN RESTAURANTS . . .
Continued from page 31

rite and the pre-cooler are multiplexed on one Brunner W150 FC compressor, with the cooler temperature controlled by a White Rodgers 201-8 thermostat and an Alco solenoid valve.

With this setup, the beer Temprite has an unlimited capacity to deliver draft beer, bar water, soda, ginger ale and Coca-Cola from one "Liquid" carbonator, served by a Hudson dispensing system. A ½ hp Brunner air compressor, equipped as a beer pump, also is located in the basement area.

All of the compressors, except for the ¾ hp machine serving the walk-in on the second floor, are located in the basement, as a space conserving measure. Each unit is either manifolded or equipped with hand valves, and all have sight feeds and silica gel dehydrators. All fixture coils use Alco KTIF expansion valves.

The pre-cooler has a switch arrangement whereby, when the light inside the cooler is turned out, the blower unit and machine are shut off. This is designed to save refrigeration during times when the cooler door must be kept open for long periods in loading or unloading operations.

The walk-in box on the second floor, where the restaurant's kitchen is located, is equipped with a Kramer KT 97 coil and powered by a Brunner W75FC ¾ hp machine.

The installation was set up for heavy duty use, as well as for more economical operation and easier servicing. And it is accomplishing that end. Manager G. A. Hofmann says that it has already proved itself infinitely more dependable than the equipment it has replaced. Both restaurant and bar service has been greatly improved, he says, and all products are now properly refrigerated at all times, regardless of how heavy customer load may be. He particularly likes the "emergency insurance" offered by the individual condensing unit arrangement.

"Better and Cheaper"

Hofmann has been in the restaurant business long enough to know the importance, in terms of good will, of adequate refrigeration equipment. And he's really "high" on the new system.

The new system is proving itself in terms of operating economy, too. Figures for only the first four months of operation are available, but according to Harry S. Post of Stone Grill Co.'s general offices in Columbus, power costs decreased approximately 10% for the period Aug. 15 to Dec. 15, 1950, as compared with the same period of the previous year. At the same time, the restaurant had greater refrigeration capacity, and 50% more air conditioning capacity.

"The sum total of this", Post says, "is that we now have good refrigeration and good air conditioning, instead of poor refrigeration and wholly inadequate air conditioning, at a slight lower cost of operation."

And results in terms of maintenance costs have also been most favorable to the new equipment. Since modernization, the company has spent $60 for maintenance, including $48 for monthly inspection service and only $12 for repair and adjustment, compared with approximately $250 during a comparable period of the previous year.

Keep Your Baby Dry!

DAVISON PA 100* REFRIGERATION GRADE SILICA GEL

Yes, sir, it's your baby when you service a refrigeration system. Put PA-100 in the system, and it'll be the driest, happiest baby ever, with the best possible protection. Extensive tests, under varying conditions, have shown that PA-100 can dry refrigerants to moisture levels that cannot be reached by other refrigerant drying agents.

Not only that, being completely inert, PA-100 cannot cause corrosion; actually helps prevent it by removing corrosive compounds from the system. And once put into the system it can remain there indefinitely for no matter how long it stays in the system there is no danger of its dusting, caking, deliquescing, channeling refrigerants or causing any other undesirable reaction.

Protect yourself, protect your customer, insist on your jobber supplying you with Davison PA-100 Refrigeration Grade Silica Gel. Cartridge manufacturers use it, or you can buy it in bulk cans. Order it by name today!

*T. M. Reg. App. For.

Progress through Chemistry

THE DAVISON CHEMICAL CORPORATION

Baltimore 3, Maryland

Pioneers and Developers of Silica Gel

CANADIAN EXCLUSIVE AGENTS FOR DAVISON SILICA GEL: CANADIAN INDUSTRIES LIMITED, SALES DIVISION, CHEMICALS DEPARTMENT

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SERVICE RECORDS . . .

Continued from page 45

the job they're working on is completed. According to Service Manager Swain, this aids greatly in controlling the mechanics, and allows the company to maneuver the mechanics for best efficiency.

The first copy of the Service Order Form is used for billing purposes, and copies are filed by number in books of 1000 copies.

Normally, service men do not leave a copy of the Service Order with the customer. When the customer does require a copy, the second copy, which is of buff color, is left with him. The third copy remains in the service man's book until the book is completed, and is used to check the company's outstanding orders so that all of them can be accounted for.

Under the company's usual practice (not leaving a copy of the Service Order with the customer) the second copies are processed through the stockroom, where they are checked to make sure that all materials are charged against the jobs shown on them. After this copy has been checked through the stock room, it goes into the Service Office, where it is matched with the white (or original) copy to make sure that all materials shown on the two copies of the Form agree.

Case Histories Kept

This work is done by the office assistant who takes care of the company's perpetual inventory cards. The material is checked off the cards, and priced. The labor also is priced, and the History Card attached, after which the whole transaction goes to the Service Manager the checking and approval.

The Service Orders are recorded and billed within 48 hours after the job is completed. On Contract Service and warranty jobs, the customer receives a "no charge" invoice, which shows under a memo billing what the charge would have been if the customer had not had this protection.

On each air conditioning installation, an Air Conditioning History Card is kept in file. This card has spaces for recording pertinent information regarding the job, including name and address of the customer; the make, model and serial number of the compressor, and information as to motors, pulley and belt, as well as the number and sizes of air filters if this is a part of the company's service responsibility.

A brief resume of each service call is written on the History Card, so that the service manager has a constant history of the job at hand when he is checking Service Orders, or whenever he wants to review the job for another purpose.

Conditioned Air maintains a perpetual inventory of all its repair and replacement stock items on perpetual inventory Stock Control cards. As a stock of each particular item is received, the date, quantity and other details are entered—and the same thing is done when items are used on various service jobs.

Maximum and minimum stock levels for each item are established, and ordering of replacement parts is virtually automatic. With its Stock Control cards, the company can tell at a glance just where it stands on any particular item, and keep its stock levels where they should be to handle all service calls quickly and efficiently.

DON'T TAKE CHANCES...
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Dependable Madden Duo-Test Driers offer you a one-piece copper shell, silver solder construction, with monel fine-mesh screen at inlet and outlet . . . top refrigeration grade, dust-free silica gel. Non-refillable types in 3, 6, and 9 cu. in., and refillable types in 12 to 50 cu. in. capacities.
So why take chances—always use the complete Madden line of fittings, driers, strainers, charging lines and accessories.
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• LESS DANGER OF DAMAGE — Use of longer nipples at ends tends to eliminate danger of damage to unit when assembled in the field.
• BETTER QUALITY for BETTER PERFORMANCE — Special bronze tubing plus precise engineering in the development of convolutions permits greater flexibility for absorbing vibration and noise.
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ACRMA - REMA Summary of Compressor Shipments

(Number Manufactured *and* Sold for Refrigerants Other Than Ammonia)

Compressor Bodies, 5 HP and Under	Total Continental U. S. Shipments, 5 HP and Under		
	Sealed Type (Hermetic)	Open-Type (Air Cooled)	Open-Type (Water Cooled)
May, 1950			
Sold in Unitary (End-Use) Products	52,743	334	1,926
Sold as Compressor Bodies, Compressors, or Condensing Units	115,448	17,367	2,966
TOTAL	168,191	17,701	4,892
June, 1950			
Sold in Unitary (End-Use) Products	61,465	390	2,595
Sold as Compressor Bodies, Compressors, or Condensing Units	110,955	20,049	3,664
TOTAL	172,420	20,439	6,259
Third Quarter, 1950			
Sold in Unitary (End-Use) Products	103,482	792	4,023
Sold as Compressor Bodies, Compressors, or Condensing Units	293,083	52,053	11,585
TOTAL	396,565	52,845	15,608
Fourth Quarter, 1950			
Sold in Unitary (End-Use) Products	63,227	373	1,748
Sold as Compressor Bodies, Compressors, or Condensing Units	302,768	37,591	8,246
TOTAL	365,995	37,964	9,994
January, 1951			
Sold in Unitary (End-Use) Products	62,758	.....	1,454
Sold as Compressor Bodies, Compressors, or Condensing Units	122,252	13,876	3,283
TOTAL	185,010	.....	4,737
February, 1951			
Sold in Unitary (End-Use) Products	41,923	.....	1,272
Sold as Compressor Bodies, Compressors, or Condensing Units	101,271	13,409	3,307
TOTAL	143,194	.....	4,579

NOT ENOUGH PLASTICS TO REPLACE METALS

Plastics are not available in quantity for replacing metals in consumer durable goods, according to C. W. Blount, vice president of Bakelite Co., a division of Union Carbide and Carbon Corp., producers of plastics raw materials.

The two most likely plastics for replacing metal in any type of construction, Blount said, are phenolic laminates and a type of glass laminate employing a plastic resin known as styrene polyester.

Phenolic laminate materials are limited by the allocation of phneolic resin by suppliers who cannot produce enough because of shortage of raw materials, he said. Projected war demands for the second of these materials, styrene polyester for glass laminates, have been such that current facilities for producing the glass fibers are being expanded several fold.

Besides, both of these materials involve resins which are made all or in part from benzol, and any expansion of availability would decrease the amount of benzol going into synthetic rubber production.

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METHYL CHLORIDE
SULFUR DIOXIDE

Distributor of "Kinetic" Chemicals' "Freon" refrigerants.

"FREON 11"—"FREON 12"
"FREON 21"—"FREON 22"
"FREON 113"—"FREON 114"

In Standard Containers

NO CYLINDERS • NO DEPOSITS
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DISPOSABLE CONTAINER WITH
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OPPORTUNITIES

(Classified Advertising)

FOR SALE

TERMINAL LEAKS ON SEALED UNITS REPAIRED FROM OUTSIDE. ONLY $1.25 PER UNIT. 3 MINUTES TO INSTALL. GUARANTEED FOR LIFE OF UNIT. SEE YOUR LOCAL JOBBER. FOR CATALOG ON ALL SEALED UNIT PARTS WRITE TO: SEALED UNIT PARTS CO., 261 EAST 161ST ST., N. Y. 51, N. Y.

FOR SALE

Smallest Compressors. Save space, weight, power and dollars. Horsepower—1/20, 1/15, 1/12, 1/10. Weight—8 pounds. To be utilized for all types of small refrigeration devices. Open type, direct connected, a.c.—d.c. Manufactured exclusively by Colby, 421 7th Ave., New York 1, N. Y. Send for free literature and information. Individual problems carefully engineered.

BUSH ICE CUBE EVAPORATORS—Inventory close-outs—finned booster coil on each side—6 tray—21½" long—18½" deep—14" high. Matches ½ H.P. compressor $45.00 each. 8 tray—21½" long—18½" deep—11" high. Matches 1/3 H.P. compressor $50.00 each. 10% discount for six or more at one time. A. P. Solenoids 3/16" orifice—⅜" inlet and outlet 110/220 v. FOGEL REFRIGERATOR CO., Philadelphia, Pa.

FOR SALE: 2000 Ea. SUPERIOR CAPPED COMPRESSOR VALVES, with Gauge Port, 1⅝" Bolt Hole Centers, ⅜" Connections. 3200 Ea. MUELLER BRASS FRIGIDAIRE TYPE COMPRESSOR VALVES, 1⅝" Bolt Hole Centers, ⅜" S.A.E. Connection. Twin Gauge Ports. F.O.B. Baltimore. . . . Subject to Prior Sale. CONTINENTAL MACHINERY & EQUIPMENT CO., OSTEND & RIDGELY STREETS, BALTIMORE 30, MARYLAND.

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WANTED—Man with tested commercial cabinet and designing engineering experience. Must be graduate BSME or experienced equivalent with actual metal layout and executive drafting tooling background. Salary mid to top four figures. Furnish complete resume of education, employment experience, personal qualities and general information. Real opportunity for man age range 30-45. Small town—desirable living conditions. Splendid opportunity for advancement to executive group. Please write Box 6151 Commercial Refrigeration & Air Conditioning.

Representative to sell nationally known commercial refrigeration line to dealers and chains in Ohio and Eastern Michigan on commission basis. Several dealers already established in territory. Write Box 6351, Commercial Refrigeration and Air Conditioning.

Large midwestern wholesaler of Refrigeration Parts and Equipment with a representative line of Heating Equipment, wants one qualified experienced salesman to travel territory. Address Box 6451, Commercial Refrigeration and Air Conditioning.

TRAINING AVAILABLE

Veterans attention: Enroll in the school of your choice before the July 25 deadline. For men engaged in or who would like to become engaged in any phase of Air Conditioning, Refrigeration, Heating, Ventilating, Heat Pump Engineering or Sheet Metal work, classes before the July 25 date start April 24, June 5 and July 17. Write for catalog. Detroit Air Conditioning Institute, 4258 Woodward Avenue, Detroit 1, Michigan.

BUSINESS OPPORTUNITIES

FOR SALE: Commercial Refrigeration Company. Well established business covering large territory in northwestern Wisconsin. Very little competition. Franchised for complete line of commercial equipment. Corner lot 66 x 100 feet on main street, one story building 24 x 64 feet, glass front, neon sign, water and sewer. Sufficient lot for future expansion or home. Low taxes. Business will pay out in one year. Write Box 6251, Commercial Refrigeration & Air Conditioning.

DEALER OBSERVES 20TH YEAR IN BUSINESS

Jacksonville Refrigeration Co., 35 West Monroe St., Jacksonville, Fla., last month celebrated the twentieth anniversary of its founding. The company was organized in May, 1931, by H. S. Hammel, owner, and W. R. Mabry, Sr., general manager.

Located at the same site today as when it opened for business 20 years ago, the company is Frigidaire sales and service specialty dealer in Jacksonville. It handles commercial refrigeration equipment, window and packaged type air conditioners, beverage and water coolers and refrigerated display cases.

Louis Haas is assistant manager, and G. W. Farson is service manager.

PARAGON

DEFROSTING TIME SWITCHES

300 M SERIES

From $19.50 List

For Commercial Defrosting

• Electric Heat • Hot Gas or Compressor Shut-Down

For UNIT COOLERS • WALK-IN BOXES FROZEN-FOOD DISPLAY CABINETS LOCKER PLANTS • REACH-IN CABINETS • FUR STORAGE VAULTS •

Paragon 300M series offers accurate, easy-to-set synchronous-motored time switches for up to 8 defrost periods per day, of two hours or less . . . one of a wide range of dependable Paragon Time Controls.

AMERICA'S LARGEST EXCLUSIVE MANUFACTURER OF TIME CONTROLS FOR ALL USES

MAKERS OF THE FAMOUS de-frost-it FOR DOMESTIC REFRIGERATORS - - ONLY $9.95

Paragon ELECTRIC COMPANY

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NO MORE FREEZE-UPS of expansion valves or capillary tubes!

ICE-X works like magic

SERVICE MEN SAY: "ICE-X IS GREAT!"

When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . . ICE-X is non-corrosive —harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . . Order from your jobber. If no jobber, order direct.

Service doesn't falter when it comes from Harry Alter

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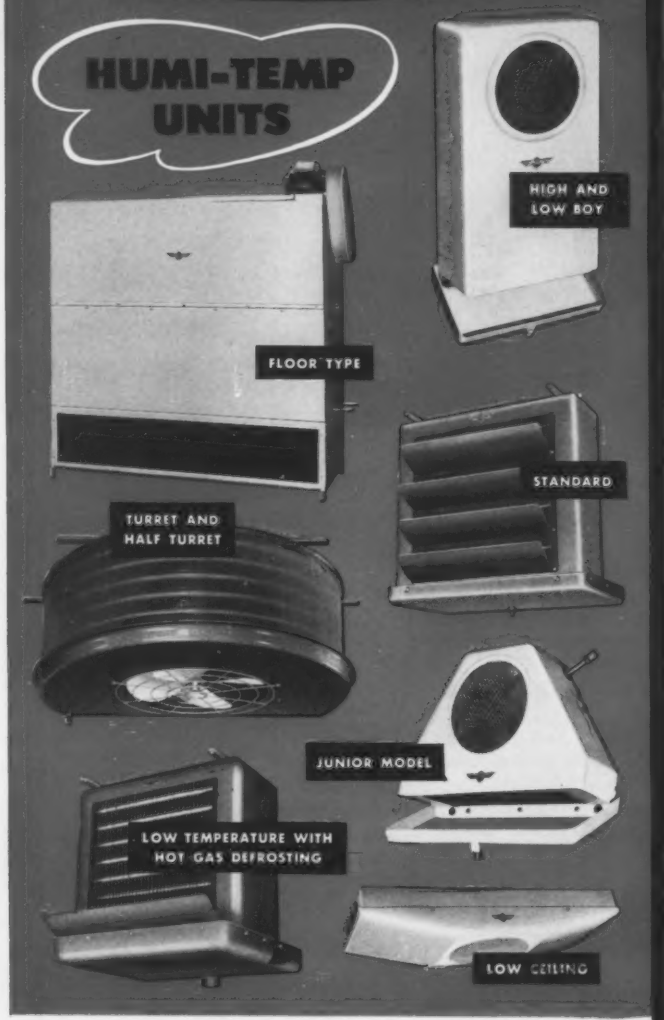
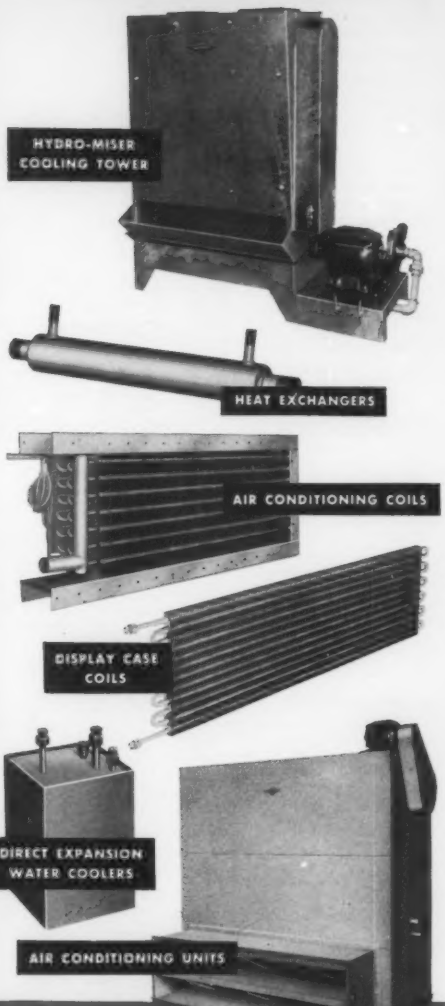
Of commercial and industrial refrigeration and air conditioning equipment





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Whenever food or refreshment is served, ice cubes as you need them. Choice of 3 beautiful models.

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Modern flush fronts with recessed handles in popular sizes. Ten models to choose from. Available in white Dulux, stainless steel fronts and glass doors.

UPRIGHT FREEZER

15 Cubic Feet

Scientific placement of cooling coils, two separate food compartments, dual doors to minimize cold loss, insure balanced freezing at minimum cost.

DRY KOOL BOTTLE COOLER

World famous for performance and design. 14 models to meet all requirements in stainless steel or brown Dulux finish.

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REFRIGERATION PRODUCTS

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3-Way Dual Shut-Off Valve

For use where Refrigeration Codes require dual relief valve installations. Stainless steel stem. Indicator plate on hand wheel shows position of valve shut-off. Completely rust-proofed.

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- Unique filter element in A-P TRAPDRI Units actually removes all foreign matter and particles as small as 5 microns. (See illustration)
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- Unique "depth filtration" gives you many times more filtering and absorbing capacity than ordinary strainers and filters.
- Equal to 900 mesh screen, without any measurable pressure drop occurring with ordinary, less effective filter and drier units.

YES! A-P 's TRAPDRI Filter and Drier Units Actually Remove Particles of Foreign Matter as Small as 5 MICRONS From Refrigeration Systems

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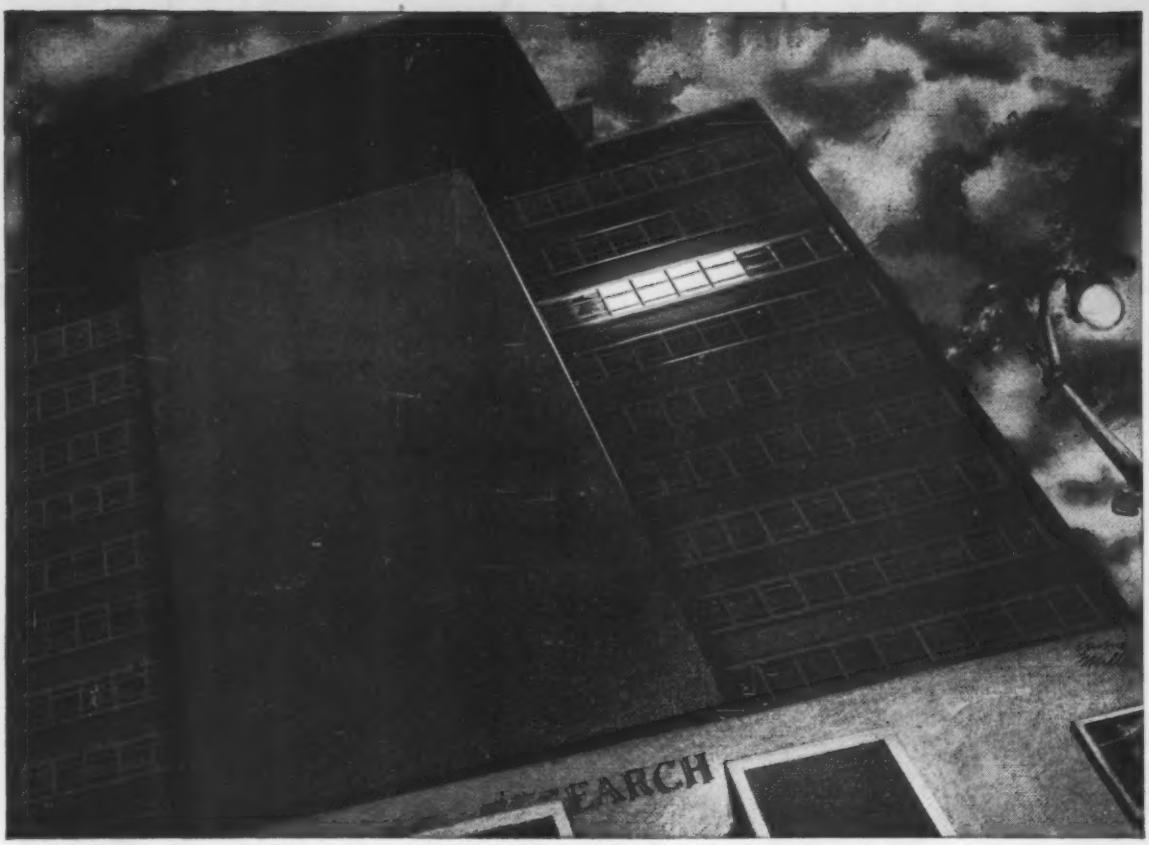

The light in the "Lab"

In the research laboratories of hospitals, clinics, and medical schools throughout our country, the lights burn late . . . as scientists constantly strive to halt humanity's greatest enemy—CANCER.

As the lights continue to burn, the hope for a cure grows brighter . . . here's why:

Cancer Research Is Paying Off

Through research—which you have helped to support by donating to the American Cancer Society—medical science now has new weapons to combat this disease more effectively than ever:

Drugs—there is evidence that a chemical treatment for cancer may be perfected. Certain drugs will prolong the lives of cancer victims . . . other promising compounds are being tested.

Hormones—treatment with hormones, such as ACTH and Cortisone, has brought about dramatic, although temporary, effects in some types of cancer. Other hormones have helped control *advanced* cancer of certain organs.

X-rays—the development of more powerful machines promises to make this form of treatment more effective.

Isotopes—radioactive chemicals are becoming increasingly useful in treating certain rare forms of the disease.

In addition, surgical technics have been improved so much that once hazardous operations can now be performed safely. And progress is being made in the development of tests to detect cancer in its earliest stages when the chances for cure are best. Research has made these life-saving advances possible. But, as long as cancer continues to kill some 210,000 men, women, and children in our country each year, we *must* keep the lights burning in the laboratories! *Much more research needs to be done before cancer can be dealt the final blow!*

Your life—the life of everyone you know—is at stake. Give generously to the 1951 Cancer Crusade.

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Mail your contribution today to CANCER % Your Local Post Office

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